Progress and Outlook for East European Agriculture, 1976-80

Thomas A. Vankai
United States Department of Agriculture
Economics, Statistics, and Cooperatives Service

Foreign Agricultural Economic Report No. 153

Sep 1978

PROGRESS AND OUTLOOK FOR EAST EUROPEAN AGRICULTURE, 1976-80, by Thomas A. Vankai, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture. Foreign Agricultural Economic Report No. 153.

ABSTRACT

The agricultural goals of the Eastern European countries' 5-year plans (FYP) for 1976-80 are presented. The feasibility of attaining the goals and the countries' performance thus far in meeting the goals are evaluated. The plans are analyzed for each country by specific types of crop and livestock production and are compared with the country's performance under previous FYP's. Agricultural growth plans are the lowest for Czechoslovakia and the German Democratic Republic and the highest for Romania. Possible effects on U.S. agricultural exports to these countries are also anticipated.

Keywords: Eastern Europe, Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania, Yugoslavia, five-year plans, crop production, livestock production, food and feed industry, food consumption, agricultural labor, agricultural trade.

ACKNOWLEDGMENTS

Many valuable comments of Dave Schoonover, Andrew Duymovic, and William Newcomb on the first draft of this report were adopted with appreciation. The author, however, accepts sole responsibility for the accuracy of this report.

Washington, D.C. 20250 September 1978

CONTENTS

HIGHLIGHTS

Key data and information are presented for the 1976-80 agricultural development plans of Bulgaria, Czechoslovakia, German Democratic Republic (GDR), Hungary, Poland, Romania, and Yugoslavia. The plans include the following goals:

- Throughout the region, crop production is slated to grow faster than livestock production.
- Increased investments and organizational and technological improvements are expected to increase agricultural productivity.
- The growth in the food and feed industries is to parallel that in agricultural production.
- Higher levels of protein will continue to be introduced into both human diets and animal feeds.
- Romania plans for the greatest growth in national income and in the agricultural sector; Czechoslovakia and the GDR plan for the lowest rate of growth.

Based on the production of 1976 and 1977, many of those targets seem unattainable.

The GDR and Poland will remain significant grain importers, while imports of protein feed will increase in all countries of the region. The United States, therefore, has good prospects to remain the dominant grain exporter to the region and has the potential to maintain its share in the region's imports of soybeans and soybean products. Eastern Europe's capability to import, however, will be influenced by its adverse balance of trade and by debt repayment obligations.

EXPLANATORY NOTES

Definitions:

Eastern Europe: Northern countries--Czechoslovakia, German Democratic Republic, Poland.
Southern countries--Bulgaria, Hungary, Romania, Yugoslavia.

Agricultural land: Cultivated land, gardens, orchards, meadows, and pastures.

Arable land: Cultivated land, gardens, and orchards.

Household plot: Garden, orchard, or cultivated land allotment of below one-half hectare allocated to members of collective farms or to workers of collectives or state farms.

Members of Council of Mutual Economic Assistance: Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania, U.S.S.R., Mongolia, and Cuba; Yugoslavia is an observer.

National income: Net material product.

Metric units are used throughout:

One metric ton = 2,204.6 pounds
One quintal = 100 kilograms = 220.46 pounds
One kilogram = 2.2046 pounds
One hectare = 2.471 acres

Exchange rates

The conversion factors used were those in effect in February 1976. One U.S. dollar had the following value in:

Bulgaria	0.966 lev
Czechoslovakia	10.150 korunas
German Democratic Republic	2.550 marks
Hungary	20.660 forints
Poland	33.200 zlotys
Romania	12.000 lei
Yugoslavia	18.050 dinars

PROGRESS AND OUTLOOK FOR EAST EUROPEAN AGRICULTURE, 1976-80

by Thomas A. Vankai
Agricultural Economist

INTRODUCTION

This paper provides key data and information about the East European countries' 1976-80 agricultural development plans. The feasibility of attaining the agricultural plans is discussed, and the prospect for U.S. exports is indicated. The data on plans were gathered from numerous newspapers and periodicals and assembled to make them available for analysis, comparisons, and aggregation for the region.

The final versions of most countries' plans were approved by their Governments in the second half of 1976, and in Yugoslavia in mid-1977. Thus, the plan period was approaching its midway at the time this report was completed.

In compiling the plans' data, reconciling definitions was the principal difficulty encountered by the author. For example, it is unclear if all countries are using the same concept of agricultural investment and agricultural trade. Other problems occurred when the 1976-80 plans (expressed in percentage increases) had different base periods, such as 1971-75, or 1975, or the plan related to 1980 instead of a 1976-80 average. Whenever this was stated or implied in the source material, it was identified as such in the text and in the tabulations.

The values given by the individual countries were converted into 1976 U.S. dollars at the official East European exbhange rates. However, because there is no market for the East European currencies, the dollar values quoted in this paper should be considered as approximate indicators and are not comparable between one country and another within East Europe.

Projected national income growth for 1976-80 ranges from 27-29 percent in Czechoslovakia and the German Democratic Republic (GDR) to 69 percent in Romania (table 1). Agricultural growth plans are the lowest, 14-15 percent, in Czechoslovakia and the GDR, and the most ambitious, 39-54 percent, in Romania. Compared with the 1971-75 results, a slower growth is planned in Czechoslovakia and Hungary, a similar one in Poland, and more accelerated growth in Bulgaria, the GDR, Romania, and Yugoslavia (table 2).

The agricultural production plans are designed to reduce grain imports in the northern countries, obtain self-sufficiency in sugar in the southern countries, and meet the increased demand for protein feed for the whole region. In the livestock sector, each country seeks, in varying degrees, self-sufficiency and increased exports of processed meats.

A faster growth rate is planned for the crop sector than for the livestock sector--except in Romania and Yugoslavia--in order to achieve a better balance between domestic feed demand and supply. The annual grain production target of 106-112 million tons during 1976-80 represents a 22-29 percent increase from the 1971-75 average annual production of 86.8 million tons (table 3). Based on the 93-94 million tons of grain produced in 1976 and 1977, this goal seems unrealistic.

Table 1--Increases in principal plan indicators, Eastern Europe, 1975-80

Country	National income	Industrial production	Agricultural production	Real income	Investments
			Percent		
Bulgaria	45	55	1/ 25	20-25	31
Czechoslovakia	27-29	32-34	1/ 14-15	23-25	36-38
GDR	27-29	34	2/ 15	20-22	1/ 31
Hungary	30-32	33-35	16-18	18-20	32
Poland	40-42	48-50	16-19	16-18	37-40
Romania 3/	69	72	39-54	32	83
Yugoslavia	40-44	47	4/ 22	18-19	47

1/ 1976-80/1971-75.
2/ Based on sectoral plans.
3/ As revised in Scinteia, December 14, 1977, Bucharest.
4/ 1980/1974-75.

Table 2--Annual growth rate in gross agricultural production, Eastern Europe, 5-year averages, 1956-80

Country	1956-60 over 1951-55	1961-65 over 1956-60	1966-70 over 1961-65	1971-75 over 1966-70	1976-80 over 1971-75 1/
			Percent		
Bulgaria	2/ 3.8	3.9	4.6	2.3	3.7-4.5
Czechoslovakia	2/ 2.8	0.5	3.5	2.9	2.6-2.8
GDR	2/ 3.0	2/ 0.2	2/ 4.0	1.7	2.8
Hungary	2.1	1.3	2.8	3.5	3.0-3.4
Poland	4.0	2.7	3.0	3.0	3.0-3.5
Romania	2.6	2.8	4.2	4.6	5.0-5.5
Yugoslavia	6.1	3.0	3.0	2.4	4.0

1/ 5-year plan.
2/ Occasional Papers of the Research Project on National Income in East Central Europe: Agricultural Output, Expenses, Gross Product, and Net Product in Eastern Europe, Prewar and 1950-1975, OP-49. L. W. International Financial Research, Inc., New York, N.Y., 1976. All other data are official country data.

Table 3--Annual average output of selected crops, Eastern Europe

Commodity and year	Bulgaria	Czecho-slovakia	GDR	Hungary	Poland	Romania	Yugoslavia	Total
	Million tons							
Grain:								
1966-70	6.25	6.97	6.67	8.17	16.80	12.70	12.92	70.47
1971-75	7.26	9.35	8.68	11.30	20.93	14.81	14.49	86.77
1976-80 plan	9.3-9.6	10.6-11.0	9.5-10.5	13.3-13.8	(24-25.5)	20.2-22.4	1/ 18.0	106.4-111.7
Oilseeds 2/:								
1966-70	0.46	0.07	0.22	0.12	0.52	0.78	0.31	2.47
1971-75	0.46	0.11	0.27	0.21	0.56	0.98	0.35	2.94
1976-80 plan	(0.49)	0.24	(0.32)	(0.33)	(0.86)	1.54-1.68	1/ 0.92	4.70-4.84
Potatoes:								
1966-70	0.30	5.68	12.28	1.66	47.90	2.85	3.00	73.67
1971-75	0.36	4.57	10.80	1.32	47.08	3.43	2.77	70.33
1976-80 plan	(0.38)	4.0	11.0	1.4	(47.0)	4.6-4.9	1/ 3.6	71.38
Sugarbeets:								
1966-70	1.86	7.20	6.31	3.17	13.60	3.82	3.44	39.40
1971-75	1.71	6.97	6.26	3.10	13.85	4.76	3.62	40.26
1976-80 plan	2.7-2.9	9.0	(7.5)	(4.0)	(17.0)	8.6-9.4	1/ 8.73	57.53-58.53

( ) = ESCS estimate based on official 1980 plans.

1/ Official 1980 plan.
2/ Rapeseed, sunflowerseed, and soybeans only.

Compared with the 1971-75 average, the planned increase of oilseed production for the entire region in 1976-80--an annual average of 2 million tons--is also behind schedule, as well as the 17-million-ton increase in sugarbeet production. No increase is planned for potato production.

Based on official statements, livestock numbers are expected to remain at the 1975 level in Czechoslovakia, the GDR, and Hungary; the planned increase in meat production in these countries must derive from increased productivity. Large increases in the cattle and hog inventories are planned in Bulgaria and Romania, while in Poland the herds will be rebuilt to the 1974 level (table 4). Czechoslovakia, the GDR, and Hungary have the lowest growth target for meat production, while the most ambitious Romanian plan calls for a 64 percent increase by 1980, compared with the 1971-75 average production (table 5). Results in the first 2 years of the present 5-year plan (FYP) do not augur well for fulfilling the Romanian targets.

The agricultural production goals are supported by a continued high rate of investment growth in Romania and growing rates of investment in Poland and Yugoslavia. Fertilizer application will be up in all countries. Bulgaria stresses organizational changes leading to centralized management and specialization, and all East European countries put added emphasis on the use of modern science and technology.

The food and feed industry is being revitalized and expanded in all countries. The food industry is to provide the population with a larger variety and supply of convenience foods and to process more high-quality food for exports.

The policy of allowing per capita income to grow, while stabilizing the retail prices of staple foods, distorted the allocation of resources and forced the countries to use an annually increasing share of their national budgets for food subsidies. Poland permitted meat shortages to develop and only in 1978 devised a two-tier price scheme. Now special cuts are available for higher prices in so-called "commercial shops."

Industry and services gradually absorbed the surplus agricultural labor. Further outflow during 1976-80 is undesirable except in Romania and Yugoslavia and some Polish districts.

Bulgaria is the leading agricultural exporter, and the GDR the leading agricultural importer among the East European countries. No change of this ranking is anticipated. Grain has been the principal import of the GDR and Poland and will remain so during 1976-80. Protein feed imports are next in importance. It is unlikely that increased domestic production will keep up with the increased need in the next few years.

A deficiency of protein feed prevails in all countries. To reduce this deficiency, alfalfa and oilseed production are being expanded, straw pellets are being treated with urea particularly in the GDR, use of slaughterhouse byproducts is expected to expand, and synthetic protein production is expected to reach commercial volume.

In the southern countries, the plans include increasing exports of processed meats, vegetables, and fruit. Hungary, Romania, and Yugoslavia each plan to export 2-3 million tons of grain by 1980.

All East European countries are in debt and lack hard currencies. The plans call for increasing exports and decreasing imports. Imports of raw materials and capital goods are scrutinized according to their usefulness to generate exports.

Table 4--Livestock numbers, Eastern Europe 1/

Livestock and year	Bulgaria	Czecho-slovakia	GDR	Hungary	Poland	Romania	Yugoslavia	Total
				Millions				
Cattle:								
1966-70	1.35	4.35	5.01	1.98	10.08	5.13	5.46	33.36
1971-75	1.42	4.45	5.39	1.93	11.43	5.68	5.44	35.74
1980 plan	2.25	NA	NA	NA	14-14.3	7.50	NA	NA
Cows:								
1966-70	0.58	1.92	2.18	0.77	5.91	2.16	2.77	16.29
1971-75	0.62	1.91	2.16	0.77	6.07	2.43	2.95	16.91
1980 plan	NA	2.00	NA	0.86	6.68	3.70	NA	NA
Hogs:								
1966-70	2.22	5.32	9.18	6.17	14.58	5.67	5.43	48.57
1971-75	2.73	6.11	10.48	7.61	18.60	8.09	6.84	54.36
1980 plan	6.00	NA	NA	NA	21-22	12.0-13.0	NA	NA
Sheep:								
1966-70	9.82	0.79	1.84	2.32	2.70	13.95	9.85	41.27
1971-75	9.86	0.89	1.69	2.03	2.64	14.12	8.17	39.40
1980 plan	10.00	NA	NA	NA	3.43	19.0-20.0	NA	NA
Horses:								
1966-70	0.22	0.26	0.22	0.27	2.57	0.70	1.12	5.36
1971-75	0.15	0.10	0.10	0.19	2.44	0.63	0.98	4.59
1980 plan	NA	NA	NA	NA	1.83	NA	NA	NA
Poultry:								
1966-70	25.33	31.17	38.88	(55.78)	82.24	46.54	36.16	316.10
1971-75	34.93	39.46	44.65	56.70	92.02	62.85	49.68	380.29
1980 plan	NA	NA	NA	NA	NA	NA	NA	NA

( ) = ESCS estimate.
NA = Not available.

1/ January data.

Table 5--Output of selected livestock products, Eastern Europe

Commodity and year	Bulgaria	Czecho-slovakia	GDR	Hungary	Poland	Romania	Yugoslavia 1/	Total
				1,000 tons				
Total meat: 2/								
1966-70	704	1,203	1,763	1,285	2,765	1,279	1,456	10,455
1971-75	815	1,614	2,124	1,653	3,540	1,770	1,662	13,178
1980 plan	1,040-1,090	1,825	2,460	2,000	4,770	2,900-3,175	2,280	17,275-17,600
Beef and veal: 2/								
1966-70	186	541	554	308	1,014	(462)	511	(3,576)
1971-75	179	624	651	324	1,152	(493)	554	(3,977)
1976-80 plan	NA	NA	NA	330	1,650	NA	712	NA
Pork: 2/								
1966-70	251	662	1,060	690	1,678	553	655	5,549
1971-75	295	799	1,258	968	2,147	850	809	7,126
1976-1980 plan	NA	NA	NA	1,965	2,820	NA	1,035	NA
Mutton: 2/								
1966-70	174	12	22	36	45	(130)	115	(534)
1971-75	172	12	21	35	47	(155)	110	(552)
1976-80 plan	NA	NA	NA	47	NA	NA	130	NA
Poultry: 2/								
1966-70	90	107	102	242	179	(634)	149	(1,003)
1971-75	162	176	153	317	273	(272)	218	(1,571)
1976-1980 plan	NA	NA	NA	361	570	NA	285	NA
Cow milk: 3/ 4/								
1966-70	1,193	4,522	7,068	1,902	14,615	3,580	3,365	36,245
1971-75	1,358	5,288	7,715	1,914	16,039	3,985	4,066	40,365
1976-80 plan	2,230-2,330	NA	8,255	2,210	20,000	6,000-6,400	5,265	NA
				Millions				
Eggs:								
1966-70	1,587	3,346	4,114	2,787	6,511	3,158	2,330	23,833
1971-75	1,758	4,267	4,690	3,521	7,575	4,644	3,273	29,728
1976-80 plan	2,100-2,200	NA	4,690	4,030	9,000	6,000-6,500	4,125	NA

( ) = ESCS estimate.
NA = Not available.

1/ Includes net trade and inventory weight gains.
2/ Live weight, including live animal exports.
3/ Includes milk sucked by calves.
4/ In the GDR, converted to 3.5 percent fat content equivalent.

U.S. agricultural exports to Eastern Europe will continue to fluctuate, influenced by the level of grain production in the importing countries and by the world grain supply-demand conditions in any given year. The U.S. share of East European imports of soybeans and soybean meal will depend on the competitiveness of the U.S. product with Brazil's in quality, price, and financial arrangement. The prospects of increasing U.S. exports, such as grain and oilseed products, to Eastern Europe would be enhanced by our importing more meat from these countries in addition to granting them export credits.

BULGARIA

Bulgarian agriculture is virtually completely socialized with less than 1 percent of the land privately owned. Individuals are prohibited from owning more than one-half hectare (ha) of irrigated or 1 ha of nonirrigated land. Until the early seventies, cooperatives occupied two-thirds, and state farms one-third, of agricultural land in units averaging 5,000-6,000 ha.

Based on a 1973 decree, further centralization of farming is underway. The aim is to create a self-supporting National Agro-Industrial Complex encompassing farming, the agricultural industry, agricultural services such as research and educational institutes, and marketing agencies. In 1978, the national complex is divided into 168 Agro-Industrial Complexes (AIC) and 13 Industrial-Agricultural Complexes (IAC). The size of individual units range between 15,000 and 100,000 ha. The average size of each AIC is about 26,000 ha.

The AIC is horizontally integrated, with some of the merging enterprises maintaining their legal and financial independence, while the IAC is vertically integrated. The farms in the IAC are subordinated to processing plants and produce exclusively for them. Of the 13 IAC's, 5 produce and process sugarbeets and 8 produce and process fruits and vegetables.

The Economic Trust, the marketing agency of agricultural commodities and now a branch of the National Agro-Industrial Complex, is emerging as a leading force in deciding what to produce.

The Government in 1977 initiated the creation of regionally self-sufficient enterprises within the National Agro-Industrial Complex. Each newly integrated complex must aim its production and marketing plans to supply a designated surrounding region with meat, fish, milk, fruits, and vegetables. Exceptions are granted to any complex that farms an area unsuited to producing certain commodities. The National Agro-Industrial Complex expects to employ one-third of the nation's labor force and to contribute 29 percent to the national income.

Bulgaria continues to emphasize industrialization in its current plan. Accordingly, the agricultural sector's share compared with the share of industry will decline in every sphere of the total economy. See table 1 for selected macroeconomic plan indicators.

Production Targets

The agricultural production plan does not spell out aggregate growth rates separately for crops and livestock. The plan specifies, however, that crop production provide an adequate feed base for the growing livestock sector. Structural changes in the sowing pattern should serve this purpose. About 63 percent of arable land will be used for livestock feed production by 1980 compared with 54 percent in 1975. This increase in land is for feed grains, soybeans, and alfalfa. Land for feed grain production is slated to increase 8 percent, and land for silage crops by 14 percent. The land for corn should increase by 150,000 ha and the soybean area should reach 100,000 ha, increasing corn area by 25 percent and tripling the soybean area. Some progress has been made during 1976 and 1977 in these directions.

Regarding other crops, the plan calls for sugarbeet production to cover domestic sugar consumption and tobacco production to shift away from oriental to Virginia and burley varieties.

Table 6--Bulgaria: Total crop production and targets

Commodity	1971-75	1976-77	1976-80 plan	Annual increase 1976-80/1971-75
	Million tons			Percent
Grains	7.3	7.7	9.3 -9.6	5.0- 5.6
Sugarbeets	1.7	2.1	2.7 -2.9	9.7-11.5
Vegetables	1.58	NA	2.05-2.25	5.3- 7.3
Grapes	1.05	1.04	1.2 -1.4	2.7- 5.9
Fruits and melons	1.23	NA	1.4 -1.5	2.6- 4.0
	1,000 tons			
Tobacco	145	145	155-160	1.4- 2.0

NA = Not available.

Based on the results in 1976 and 1977, it is unlikely that the targets can be met.

A major goal of the 1976-80 FYP is a redistribution of production to enhance regional self-sufficiency, as well as a more specialized production within the enterprises. While wheat will be grown nationwide, corn, soybean, and sunflower production will be concentrated in northern Bulgaria. Barley, oriental tobacco, and cotton will be grown in the south. Corn in the south, while less significant, will be grown on irrigated land only. Broad leaf tobacco will be concentrated in the northeast, Virginia tobacco in the northwest.

Irrigated lands are projected to increase 4 percent annually during 1976-80 and guidelines have been prepared describing how to use irrigation for best returns. All soybeans, 46 percent of corn, and 44 percent of alfalfa must be sown on irrigated land.

By 1980, nine districts in northern Bulgaria will grow 80 percent of the corn, and five districts will grow all the soybeans; in the south, five districts will grow 50 percent of the barley. Vegetable farming, very important in Bulgaria, will be established on several 1,000- to 2,500-hectare units of irrigated land.

Household plot farming will receive continued Government support and will be incorporated in the national system. Presently, more than 10 percent of the socialized arable land is cultivated privately in small household plots.

Directives call for specialization and for large-scale units in the livestock sector as well. Both hog and cattle inventories are slated to grow significantly, while the number of sheep will be maintained at the present level. In the cattle industry, the share of cows in cattle stock is to be increased and the breed improved.

Table 7--Bulgaria: Livestock inventory and targets 1/

Commodity	1975	1978	1980 plan	Annual increase 1975-80
	1,000 head			Percent
Cattle	1,554	1,735	2,250	7.7
Hogs	3,422	3,400	6,000	11.9
Sheep	9,791	10,145	10,000	0.4

1/ Beginning of year.

The targets are ambitious because between January 1975 and 1978 the number of hogs remained stationary and the number of cattle increased less than 6 percent annually.

In line with the FYP, a concentration of hog and broiler production is being promoted. Cattle raising will continue nationwide, while sheep raising is relegated to the mountainous or semimountainous terrain. Bulgaria acquired technical know-how for industrial-type production and had suitable shelters by 1975 for several industrial fattening units. Eighteen large hog-fattening units produced 30,000 to 100,000 hogs each; 13 broiler units produced 3 million to 6 million birds each. Livestock holdings are encouraged also in individual households, and feed is allocated to individual producers. To preserve healthy stock, disease prevention is fostered with increased financial assistance to research in veterinary science and animal husbandry.

Table 8--Bulgaria: Livestock production and targets

Product	1975	1977 1/	1980 plan	Annual increase 1975-80
	1,000 tons			Percent
Meat, including edible fat	571	634	640-670	2.3-3.2
Milk 2/	1,801	1,960	2,580-2,680	7.4-8.3
Wool	34	NA	35-36	0.6-1.2
	Millions			
Eggs	1,845	1,900	2,100-2,200	2.6-3.6

NA = Not available.

1/ Preliminary.
2/ Includes cow, buffalo, sheep, and goat milk.

The livestock production goals, based on inventory increases and increased output per livestock unit are to be achieved through improvements in breeding and feeding

technology. Milk yield per cow should be up 29 percent between 1975 and 1980.

Since the growth of feed base and livestock inventory in 1976 and 1977 was below expectation, it is unlikely that Bulgaria will achieve all the livestock production goals of its FYP.

Investment and Input Goals

The total capital investment target is $31.8 billion during 1976-80. Investments in agriculture, accounting for 15 percent of the total in 1971-75, will be increased in 1976-80, but probably at a lower rate than investments in other sectors of the economy. The largest part of agricultural investments--55 percent--will be used to modernize existing buildings to suit the ongoing production specialization and integration of agriculture with the food industry. The remaining investments will be in mechanization and land improvements.

Each member of the Council for Mutual Economic Assistance (CEMA) specializes in certain types of machine production. Bulgaria, besides manufacturing some tractors and implements, specializes in machinery used in viticulture, fruit and tobacco growing, and in equipment needed in the tobacco and canning industries.

The agricultural mechanization program is geared to develop systems for the entire production cycle of grains, tobacco, forage, vegetables, fruit, and livestock. The Bulgarian plan calls for increasing the production capacity of the tractor park from 137,000--in 15-horsepower (hp) units--in 1975 to 150,000 in 1980 and at least to double the 10,300 grain combines in use in 1975. The trend is for shifting to more powerful tractors, thus facilitating various types of cultivations simultaneously.

Both consumption and production of fertilizers are planned to increase. Fertilizer use is expected to increase from 151 kg of nutrient per hectare of arable land in 1975 to 250 kg in 1980. Domestic production of nitrogen fertilizer should increase from 672,000 to 716,000 tons, and phosphate fertilizers from 246,000 to 450,000 tons during the 1976-80 FYP. This will be accomplished by enlarging factory capacities and introducing compound fertilizer production. A large urea plant is presently under construction at an estimated cost of $180 million. The plant should be in operation by 1980 or 1981.

Irrigated areas will be expanded by 200,000 ha from 1 million ha, at present. Irrigation canals will be built and fed with water by pipelines. The Soviet Union is assisting in the Silistra district with finance and technical help in developing a modern irrigation system with three pumping stations and a network of dams and canals.

Food and Feed Industry

The food and feed industry, as noted previously, will be a part of the national Agro-Industrial Complex and will be organized within the farm structure. It is expected that the food industry's output will increase 40 percent during 1976-80, and, by 1980, it will account for 24 percent of total industrial production and 35 percent of total exports. The largest beneficiary in expansion will be the sugar-refining industry, which will receive 65 percent of the investment funds allocated to the food industry. The funds must be spent for reconstruction rather than for new buildings, however.

A large variety of food products, including semiprocessed and ready-to-eat foods, will be introduced on the market. The following percentage increases in food production are planned between 1975 and 1980:

	Percent
Meat and meat products	50
Milk and milk products (milk equivalent)	40
Vegetable oil and fats	40
Sugar	37
Canned fruit	40
Canned vegetables	38
Soft drinks	70

During the first 2 years of the FYP, the food industry failed to fulfill the plans and output declined slightly in 1977.

The capacity of the mixed-feed industry is planned to grow from 3.7 million tons in 1975 to close to 6 million tons by 1980. Since 1976, the Government purchased grain for feed that had been produced by the socialized sector and resold it after mixing grain with protein-rich feed, such as sunflower, soybean, fishmeal, and a gradually increasing share of alfalfa meal.

The increasing use of protein in feed rations is expected to lead to stepped-up oilmeal imports. Total oilmeal demand by 1980 is estimated by Bulgarian officials to be close to 600,000 tons, of which about 40 percent will be soybean meal. Domestic fishmeal production is planned to increase from 5,000 to 12,000 tons in 1980, byproducts of slaughter from 17,000 to 30,000 tons, skim milk from 5,000 to 12,000 tons, dried yeast for feed from 23,000 to 123,000 tons.

Labor, Income, Consumption, and Prices

Average population growth was 0.8 percent per year between 1950 and 1960, and 0.6 percent between 1960 and 1976. Industry absorbed all new entries into the labor force, including the outflow from agriculture. Projected manpower requirement by 1980 is larger than the projected supply. Agricultural employment--28.4 percent of the total labor force in 1975--was often inadequate at peak harvest times, thus it is not expected to be depleted further during 1976-80. The Government now relies heavily on the military and students to assist in harvesting. The organizational changes and increased mechanization will bring some relief to the farm labor shortage. Also, in the new organizational scheme, food and feed industry and farm labor will be amalgamated in order to smooth out seasonal fluctuation in manpower needs.

During the seventies, the wages of farm workers increased faster than the wages in other sectors; and thus the cooperative farmer's income, when the revenue derived from household plots was included, reached the level of industrial wages. Since 1976, the cooperative farmers have been included in the pension program under the same principle as the industrial workers.

Bulgaria's goal of upgrading the per capita food consumption with more meat, fruit, and vegetables, and less starchy food is similar to the goals in other East European countries. The share of total disposable income spent for food is about 40 percent. This share is not expected to decline significantly during the shift from lower cost food to higher quality items and precooked meals.

Table 9--Bulgaria: Food consumption per capita

Product	1975	1980 plan
	Kilograms	
Meat and meat products	56.5	70-75
Milk and milk products 1/	145	200
Flour	157	150
Vegetable oil	13.8	14
Sugar and sugar products	34	35-36
Vegetables	94	150
Fruit, including melons	118	190
	Units	
Eggs	145	200

1/ Milk equivalent.

Consumer prices of staple foods are fixed independently of producer prices and remained stable with the help of subsidies. During 1971-75, real income increased 32 percent, causing difficulty in satisfying demands for goods and services. The 1976-80 plan calls for a 20-25 percent increase in purchasing power. The producer prices paid to the farmers are varied in an attempt to create identical conditions for farms managed under different economic conditions.

Agricultural Trade

Bulgaria is the leading exporter of agricultural products in Eastern Europe. Agriculture's share of total exports, while still about 35 percent in 1975, has been declining gradually from more than 50 percent prior to 1965. The share of agricultural imports to total imports ranged from 12 to 16 percent between 1971 and 1975.

Bulgaria's foreign trade value is equal to two-thirds of the national income, the highest such ratio in Eastern Europe. Of the total Bulgarian exports in 1975, about 80 percent was destined for the CEMA-affiliated countries, with the rest being about evenly divided between the developed and developing countries. The trend is for exports to the developing countries to increase while those to the developed countries decrease. Three-quarters of Bulgarian imports originate in CEMA member countries, somewhat less than Bulgarian exports to these countries.

Bulgaria's trade deficit peaked at $770 million in 1975 with the developed countries against some trade surplus elsewhere. The total deficit declined to about $200 million in 1976 and 1977.

Bulgaria maintains a positive balance in its agricultural trade. Tobacco and cigarettes, bottled wines, canned fruit and vegetables, and fruit juices are Bulgaria's principal agricultural exports. Sugar, protein feed, and cotton are the principal agricultural imports.

In the past, compared with other Eastern European countries, Bulgaria kept itself the most isolated from Western economic influences; it did not permit permanent residence to Western sales representatives, for example. In the past few years,

however, it has become less reluctant to use Western credit for purchasing technological know-how, and has used credits available on international money markets.

U.S. agricultural exports to Bulgaria grew gradually from $2 million annually through 1973 to $37 million in 1976. During the same period, U.S. agricultural imports from Bulgaria had also an upward trend from $3 million to $11 million. In 1977, however, U.S. exports declined to $2 million while imports from Bulgaria jumped to $23 million. Considerable increases in U.S. tobacco imports and elimination of grain exports caused the precipitous changes.

An increase of 60-65 percent in total trade is projected for the present FYP. Increased grain production should allow some to be exported, which should generate foreign exchange to pay for the growing protein imports needed for the buildup of the mixed-feed industry. Bulgaria is also striving to export more meat in the future. Beginning in 1977, above-planned quantities of meat, purchased by the Government from individual producers, will be exported and the proceeds used to buy protein imports. Based on the projected demand, oilmeal imports of 150,000-200,000 tons will be needed during the current FYP even if domestic protein production increases as planned. Drought in 1977 seriously set back the present FYP and forced Bulgaria to be a net grain importer in 1978.

The 1976-80 FYP calls for a 14-15 percent growth in gross agricultural production. This level is slightly below that attained in 1971-75 when compared with the 1966-70 results (table 2). The Czechoslovak agricultural production plan is the most modest in Eastern Europe. The plan was developed in 1973, and discussed in 1975, but was presented to and approved by the Parliament in its final form only in July 1976.

The goal is for a 16-17 percent growth in the crop sector and a 13 percent growth in the livestock sector. The plan's objective is to develop an adequate feed base and reduce reliance on imported grains while providing sufficient and inexpensive food to the population. Since, however, demand for food is stimulated with higher income and low prices, this objective may lead to an economic imbalance.

The modest growth of investment funds to be allocated to agriculture is unlikely to promote the planned output. The Government, however, is relying also on utilizing reserve capacities, such as increased work productivity generated through production specialization and mechanization, and on increasing the scale of production through enterprise cooperations. In 1975, the less efficient small-scale operators supplied 25 percent of eggs, 33 percent of broilers, and 61 percent of hogs. Productivity can also be stimulated by improving forage utilization technology and upgrading the protein ratio in feed formulas. More comprehensive mechanization, better transportation, and enlarged storage capacities can help reduce losses. Weather remains, however, the crucial factor in fulfilling agricultural plans. The drought in 1976 provided a bad start for the current plan although the 1977 output was satisfactory.

Production Targets

The grain production target was set at 10.6-11 million tons annually during 1976-80. This compares with a 9.3-million-ton average in 1971-75. The best harvest so far was 10.4 million tons in 1974, and this was nearly matched in 1977. The larger output must come from increased yields rather than through expansion in area. No change is planned in land utilization practices; the share of grain will remain stable at 52 percent of arable land. A slight increase in corn area is being promoted.

Sugarbeet production is planned to rise from an annual average of 7 million tons during 1971-75 to 9 million by 1980. Oilseed production should double to 240,000 tons. A considerable expansion of area is planned for rapeseed, while smaller expansions are planned for sunflowerseeds and soybeans. But, as in the case of grains, most of the increase in oilseed production is expected to come from higher yields.

The area for potatoes will be cut; again, larger yields are supposed to keep production at the present 4-million-ton level. The output of other crops, such as pulses, forages, fruits, and vegetables, also is expected to rise, while in most cases area will remain constant.

In the livestock sector, priority is given to improving feeding efficiency and upgrading cattle husbandry. About 100,000 cows are to be added to the inventory during 1976-80. Milk yield should increase from the present 2,900 kg per cow to 3,100. The planned growth in meat production is expected to result from improved productivity --increasing weight gains per feed unit--rather than from increased animal numbers. The growth in meat production is expected to keep pace with the growth in domestic consumption.

Table 10--Czechoslovakia: Crop yields and targets per hectare

Commodity	1971-75	1977	1980 plan
		Quintals	
Grain	34.1	37.7	41-42
Sugarbeets	352	378	400-415
Potatoes	154	154	180-190

Investment and Input Goals

The 1976-80 FYP called for a 36-38 percent increase in investment, based on 1967 prices (table 1). By the end of 1976, however, the goal had been reduced to a 25 percent increase. No breakdown by sector was given, but it is implied that energy-producing industries and those exploiting raw materials will receive preference in the allotment of funds. In previous FYP periods, investments (in constant prices) grew 44 percent in 1971-75 and 32 percent in 1966-70.

Agriculture accounted for about 11 percent of total investments in previous plan periods. This proportion is anticipated to decline slightly to 10 percent during 1976-80. Land improvement, mechanization of crop production, increased livestock production, and construction of greater grain storage capacity will have priority in agricultural capital investments. Land improvement projects will bring an additional 60,000 hectares under irrigation, and 300,000 hectares under drainage.

Investment funds will be used to help farms to finance the purchase of 49,000 tractors and 10,000 combines. Adhering to the CEMA policy of specialization in the manufacture of certain types of machinery, Czechoslovakia will import all its combines from the Soviet Union and the GDR. About 20,000 tractors will be bought from various CEMA members while Czechoslovakia will have an exportable surplus of tractors with 40 to 120 horsepower.

By the end of 1975, grain harvesting had been mechanized 100 percent, sugarbeet harvesting 95 percent, and potato harvesting 50 percent. In the coming years, machinery with substantially greater capacity and speed than that used at present will be put in service. Repair and maintenance of machines will shift from the farms to large service centers in order to improve workmanship and reduce repair costs.

Fertilizer use, which rose by 45 percent during 1966-70 and 30 percent during 1971-75, will increase only 21 percent in the 1976-80 period. Czechoslovakia relies heavily on fertilizer imports from the U.S.S.R. The Czechoslovaks have contributed equipment to build a fertilizer factory in the U.S.S.R. in exchange for an assured fertilizer supply. Czechoslovakia also intends to boost its use of plant-protecting chemicals.

Food and Feed Industry

A guideline for the 1976-80 FYP calls for harmonizing the growth of agricultural production and processing capacities to achieve optimal processing of the raw materials and the production of high quality foods by new construction, modernization, and reconstruction of the food industry.

New production facilities will include seven meat-processing plants, seven dairies, two freezing centers, and three malting operations. A sugarmill in Trebisov will be remodeled. A modern meat plant, the largest in Czechoslovakia, opened in November 1977, with an annual capacity exceeding 40,000 tons of meats and meat products.

During 1977, about $128 million was invested in food industry projects. Construction costs absorbed about two-fifths of this amount; three-fifths was spent for machinery. Investments in the food industry are forecast to reach $700 million during the present FYP.

The capacity of the mixed-feed industry should more than double from the present annual output of about 2.5 million tons. The grain storage capacity will be increased by 1.6-1.8 million tons.

Labor, Income, Consumption, and Prices

Labor shortage is one factor that could slow Czechoslovakia's economic growth. The youth entering the labor force during 1976-80 were born between 1957 and 1963 when the population growth rate averaged 0.35 percent annually; consequently, the expected increment of young labor will be inadequate.

Agriculture accounts for 1 million workers--12 percent of the total labor force. One worker is available for 7 ha of agricultural land compared with a 1:6 ratio in 1970. The Government is now eager to halt the outflow of farm labor since funds are insufficient to substitute adequate machinery for workers leaving the farms.

The growth target for 1976-80 real income--money income plus service benefits--is set at 23-25 percent, less than the 28 percent growth achieved during the last FYP. Real wages are planned to rise 13-15 percent.

Since the Government is committed to keeping meat prices stable during the current FYP, the rise in income is expected to spur demand for meat products. The planned rate of increase in meat consumption is, however, slightly slower than in 1971-75 when it rose 10 kg from 67 kg to 77 kg. The Government may be unable to satisfy completely the demand for more, better quality meats and will have difficulty reaching the anticipated 88 kg goal by 1980, because of inadequate domestic feed production and limitations on imports forced by an adverse balance of payments.

A comparison of planned per capita food consumption for 1980, with actual 1975 levels, shows that use of meat, milk and dairy products, fats, eggs, fruits, and vegetables will climb, while sugar remains constant and cereals drop.

One of the goals of the FYP is to upgrade the Czechoslovak diet by reducing consumption of starchy foods and increasing use of those high in protein or vitamins, like meats, fruits, and vegetables. The average share of household expenditures spent for food and beverages may continue to slide, because incomes will rise faster than retail prices for food. In 1975, for example, these expenditures made up 27 percent of the total, having slipped from 39 percent in 1970.

In the last few years, Czechoslovakia has attained self-sufficiency in dairy products and eggs, but produced only 95 percent of its meat requirements. The goal of self-sufficiency in meat production by 1980 will be difficult to attain if demand is stimulated by rising income and stable prices.

Presently, no basic changes in price policy are contemplated. In 1977, the producer prices were realined. Milk, beef cattle, potato, and sugarbeet prices were increased; wheat, rye, broiler, egg, and grape prices were reduced in the range of 6 to 17 percent. The price changes were designed to reflect the shift in production

cost. Price reductions have offset the increases, leaving the average level of agricultural producer prices unchanged.

Despite the realinement of producer prices, the retail prices of staple foods will be maintained through 1980 with the help of subsidies. In 1977, prices of nonessentials were increased--50 percent for coffee, 33 percent for chocolate. This will reduce somewhat the Government food subsidies which account for about one-fourth of the retail prices of meat, bread, and sugar.

Table 11--Czechoslovakia: Food consumption per capita

Product	1975	1980 plan
	Kilograms	
Meat (including edible offal)	77	88
Milk and dairy products (excluding butter) 1/	210	225
Fats, oil, and butter	20	22
Sugar	38	38
Cereals (grain equivalent)	143	98
Fruits	48	65
Vegetables	74	89
	Units	
Eggs	297	308

1/ Milk equivalent.

Agricultural Trade

Farm products accounted for 22 percent of all Czechoslovakia's imports during 1971-75, but only 8 percent of its exports. To close the gap between production and market requirements, Czechoslovakia imported food and agricultural products valued at about $1.5 billion annually from 1974 to 1976. Cotton, grains, protein-rich feed, fruits, and vegetables were the major imports. The volume of grain imports ranged between 1 million and 2 million tons annually during 1971-77. If grain production meets expectations, grain imports will decline. In contrast to grain imports, oilmeal imports increased from an annual average of 370,000 tons in 1966-70 to 620,000 tons in 1971-75. The share of protein feed used in concentrates in Czechoslovakia is well below West European standards. With the buildup of the mixed-feed industry, the share of protein feed will increase in the feed rations and will lead to more imports.

Agricultural imports from the United States peaked at $221 million in 1976. Grain was then the leading agricultural import ($113 million) followed by soybean meal ($81 million). Czechoslovakian imports also included hides and skins ($11 million), nuts, tobacco, and miscellaneous oilseeds. The imports declined sharply in 1977, principally because of the reduced grain imports.

In subsequent years, soybean meal and cattle hides will be the leading Czechoslovakian agricultural imports from the United States. Czechoslovakia will turn to the West for grain only in years of a simultaneous crop failure in both Czechoslovakia and in the U.S.S.R., the principal supplier to Czechoslovakia.

Although many details of the 1976-80 plan have not been published, it is evident that the plan is gradually undergoing downward modifications. In the past 3 years, Czechoslovakia's terms of trade deteriorated because of the price explosion in raw materials. The trade surplus in 1971 and 1972 was followed by serious trade deficits, reaching a high of $700 million in 1975. The deficit declined in the subsequent years, but was still about $400 million in 1977. Czechoslovakia must accelerate its exports and reduce its imports to correct its trade imbalance. But general economic conditions in the West and the 1975 renegotiation of intra-CEMA trade prices have had adverse effects on the Czechoslovakian efforts.

Production shortfalls in agriculture put a pronounced drag on the Czechoslovak economy in 1976. In other years too, however, the deficit in agricultural trade surpassed the total trade deficit in Czechoslovakia.

Czechoslovakia financed its debt with hard currency loans and with credits granted by the U.S.S.R. The obligation of credit repayments and debt servicing can be detrimental to the future growth of the economy.

The 1976-80 plan in its final form was published in December 1976 after prolonged discussions between Government planners and enterprise managers. This is the first FYP disaggregated to the enterprise level, and calls for national income to rise by 27-29 percent and industrial production by 34 percent. Labor productivity is expected to contribute 85-90 percent of the industrial production increase. In agriculture, an unprecedented 16-20 percent growth is prescribed for crop production while the target for the livestock sector is a more moderate 9-15 percent.

Production Targets

The emphasis on growth in crop production should reverse the trend of faster growth in the livestock sector. In 1976-80, the planned annual average output of all grains, 9.5-10.5 million tons, represents an increase of 9-21 percent from the output attained during the previous FYP. This is below the 1971-75 increase when production rose by 30 percent over the 1966-70 output. Improved yields are to account for more than two-thirds of the rise, while an increase in sown area will account for the rest. The current FYP calls for an average grain yield of about 4.1 tons per hectare, compared with 3.62 tons per hectare in 1971-75.

To meet the planned increase in sugarbeet production, emphasis will be placed on improved sugarbeet varieties and better cultivation techniques which are intended to raise yields and improve sugar content by 1980.

Potato production is to stabilize at 11 million tons, with higher yields compensating for a decline in area. Growers' cooperation is being sought to produce in concentrated areas in order to enhance efficient cultivation. Fruit and vegetable production is expected to increase by 10 percent, the latter stimulated by construction of more greenhouses. Production of pulses should grow from the present 100,000 tons to 250,000 tons by 1980.

Based on the apparently moderate amounts of additional resources to be allocated to agriculture, on the performance in 1976 and 1977, and on the principle of diminishing returns from the already high level of input used in GDR agriculture, it seems unlikely that all the plan's targets will be met.

The drought in 1976, described as the worst in 100 years, seriously hurt all crops, with the exception of rapeseed which had ripened before the dry weather took its toll. In 1977, by contrast, too much rain at harvest time hurt the crops, thus thwarting full recovery and reducing the chances for fulfilling the FYP.

The livestock production plan calls for a slowdown from the past overrapid growth of this sector. The faster rate of expansion in livestock than in crop production caused a deterioration in feed-livestock self-sufficiency. The 1976-80 plan intends to reverse the trend that had widened the gap between feed requirements and domestic supplies.

The GDR published only State purchase plans, and these plans provide a basis for estimating the livestock production goals. In 1975, for example, State purchases accounted for 95 percent of the country's slaughter animals, 94 percent of the milk output, and 92 percent of the eggs produced. Based on the purchase plans, it is estimated that, by 1980, production will increase to 2.46 million tons (live weight) of slaughter animals, 258,000 tons of eggs, and 8.7 million tons of milk. Accordingly, during 1976-80, no gains are planned for egg production, a 2 percent gain for meats, and a 7 percent gain for milk.

The livestock sector, led by pork and poultry, fared much better during 1971-75 (table 5).

Investment and Input Goals

For 1976-80, a total investment of $95 billion is planned. This represents about a 5.5 percent annual rate of increase, identical to the increase planned for 1971-75, although only 4 percent was realized then. An investment of $12 billion is set for agriculture and the food industry, 16 percent more than that attained in 1971-75.

To reach the production goals of the current plan, 49,000 tractors and more than 7,000 combines, many of these with a higher production capacity than those in use at present, will be supplied to farms. Irrigation equipment is scheduled to be installed on 500,000 hectares during 1976-80 in addition to the new installations on 400,000 hectares in 1971-75. A recent GDR survey found that 3.2 million hectares of land are suitable for irrigation while only 600,000 hectares have equipment in place.

Fertilizer use is planned to increase 11 percent, compared with the 17 percent rise in 1971-75. This reduced growth rate will be partially compensated for by a more scientific application.

Ronald A. Francisco, 1/ analyzing the GDR agricultural investment goals, observed that a 115 percent increase in investments will be needed to achieve the scheduled growth. This finding, even if overstated, identifies the lack of sufficient investment as one inherent weakness of the plan.

To balance the apparent inadequacy of planned investments, the GDR has a number of options that could help agricultural growth without overly large expenditures. Progress has been made, for example, in upgrading feed rations, extending the use of straw for feed, and improving feeding efficiency through establishment of larger, more specialized operations.

Food and Feed Industry

Investments in the food industry are directed toward remodeling and expanding existing facilities rather than building new ones. In an exception, however, four new standardized slaughterhouses were authorized. Since, in the past, the GDR meat-processing industry had been unable to cope with the increased production, the country had to export some live animals instead of the more profitable processed products. The new slaughterhouses will have an annual slaughter capacity of 70,000 tons of hogs and 40,000 tons of cattle. Machines making use of the latest technology will be imported from various CEMA member countries to ensure efficient operation. The FYP target is to process an additional 300,000 tons of live animals and 1 million tons of milk compared with the 1971-75 level.

In the feed industry, converting straw to feed by treating it with urea will continue to receive primary attention. The facilities for pelletizing straw are usually adjacent to the feed-drying plants. During 1976-80, 59 of these combined plants are to be built. The 1975 pelletization capacity of 560,000 tons had increased to 1.5 million tons in 1977, and it is now estimated that the planned 1980 goal of 3.3 million tons will be surpassed. Treating straw with urea, caustic soda, and other chemicals provides high-grade fodder for ruminants, and it is estimated that, by 1980, straw could supply 8-12 percent of the energy needs of cattle.

1/ Roy D. Laird, Joseph Hajda, and Betty A. Laird (ed.). The Future of Agriculture in the Soviet Union and Eastern Europe, Westview Special Studies on the Soviet Union and Eastern Europe. (Boulder, Colorado: Westview Press, 1977)

The mixed-feed industry--some 104 plants of varying size--has a production capacity of about 4.5 million tons. New computer-programmed enterprises with annual capacities of 200,000 tons are to be added during 1978-80.

No solution has been found to eliminate protein deficiency. With the collaboration of the U.S.S.R., mass production of microbic protein from oil is scheduled to begin in Schwedt during the current FYP.

Labor, Income, Consumption, and Prices

The GDR is on a zero population growth path. The number of persons employed in agriculture is declining. In 1970, one agricultural worker provided food for 23 people and in 1975, for 31. By 1980, it is expected that this ratio will be 1:35. This implies that agriculture's share of the total labor force will decline below the present 11 percent.

Personal disposable income of the population is planned to increase 20 to 22 percent between 1975 and 1980. The retail sales turnover should match the income growth rate and retail prices will be kept unchanged. The share of industrial consumer goods in total consumer expenditures is expected to increase. Meat consumption growth, on the other hand, should be less dynamic than it was between 1970 and 1975.

By 1975, the actual per capita meat, milk, egg, and fruit consumption surpassed plans.

Table 12--GDR: Food consumption per capita, 1975

Product	1970	1975 Planned	1975 Actual
		Kilograms	
Meat	66.1	72-75	77.8
Milk (product weight) 1/	101.6	103	103.9
Butter (product weight)	14.6	15	14.7
Fruit 2/	55.5	55-60	66.6
Tropical fruit	11.8	13-15	18.9
Vegetables	84.8	93-95	90.0
Coffee	2.2	2.8	2.4
		Units	
Eggs	239	247	269

1/ Converted to 2.5 percent fat content.
2/ Fruit and nuts converted to fresh fruit equivalent.

The rapid growth in consumption was due to the growing disposable income and stable retail prices which have been maintained at an annual cost to the State budget of \$3.9-\$4.7 billion. The Government has pledged to continue the subsidization of food prices through 1980.

Agricultural Trade

The deteriorating terms of trade have been a drag on the economy. GDR exports during 1971-75 rose 82 percent, compared with a 93 percent increase in imports. Much of this unfavorable development was due to the higher rate of increase in import prices than in export prices, rather than to a greater volume of imports. This deteriorating trade balance caused annual increases in the trade deficit which stood at $2.7 billion in 1977, up from $1.2 billion in 1974.

Currently, about two-thirds of the GDR's trade is with other members of the CEMA. GDR estimates indicate that this trade may grow by 50 percent between 1976 and 1980. Estimates have not been released either on planned trade with non-CEMA nations or on total agricultural trade. The GDR's agricultural exports fluctuated in recent years between an estimated 6 and 8 percent of total exports. Agricultural imports account for 25 to 30 percent of total imports. With an approximate value in excess of $2 billion, the GDR is the largest importer of agricultural products in Eastern Europe. The principal agricultural imports in order of importance are grains, oilmeals, cotton, tobacco, wool, and vegetable oil. Based on the planned production, the volume of grain imports may decline gradually but is likely to be higher during 1976-80 than during 1971-75. Refined sugar is the major agricultural export.

The total value of U.S. agricultural exports to the GDR reached a record $411 million in 1976, which is 10 times the level of 1972. The steady growth of U.S. exports in the early 1970's was followed by a decline in 1977, but a recovery is expected in 1978. Under an informal understanding between the two countries, the United States expects to supply about 1.5-2 million tons of grains annually to the GDR through 1980. Besides grains, U.S. soybean meal is expected to continue as a principal GDR import.

In financial circles, the sudden growth in the GDR's trade deficit is of some concern. Besides the deteriorated terms of trade, shortfalls in agricultural production contributed to the foreign debt accumulation. Since the 1977 GDR grain harvest was less than planned, feed imports will remain high in 1977/78 and will continue to contribute to a negative trade balance.

The central plans in Hungary are largely macroeconomic. Managerial flexibility is tolerated, even encouraged, and day-to-day economic activities are not monitored by central authorities. But the plans drawn by the enterprises must be in harmony with the national directives. The Central Government provides fiscal and financial stimuli to achieve the desired targets. Administrative orders are applied only as a last resort.

Each large agricultural enterprise--State and collective farms--prepared 1-year plans as well as the designated 5-year plans. The plans, in general, must follow the national aspirations embodied in the State plan. They must be submitted for approval to the Agricultural Ministry. The plans, even if they deviate from the national guidelines, are usually accepted if the deviations are justified by local circumstances. Enterprise plans are then aggregated by the Ministry. If the sum of individual goals indicates that the national plans will not be reached, the instruments used to influence decisionmaking--prices, credits, subsidies, taxes--are readjusted. Some selected central plan targets for 1976-80 are shown in table 1.

In 1975, agriculture accounted for 15 percent of the national income, 23 percent of the labor force, and 19 percent of the investment. Due to the designed slower growth rate in agriculture than in other branches of the economy, agriculture's share of these resources will decline in the coming years.

Hungarian officials admit that the 16-18 percent growth in agriculture is an optimistic target even if normal weather conditions and smooth coordination prevail between agriculture and industry. The agricultural investment growth plan--a total of 3 percent in 1976-80 in real terms--is not commensurate with the output goals. The planners rely on better utilization of resources, factor productivity increases, and more inventive management to attain the planned output. In 1976, the first year of the plan, adverse weather caused a 3 percent production decline; in 1977, however, an estimated 10 percent growth returned agriculture to its planned track.

Production Targets

The plan calls for annual increases of 3.6-3.8 percent in crop production and 3 percent in livestock production. The ambitious plan for crops will be hard to meet; it will entail the regular utilization of about 5 percent of the land left fallow annually and the adequate use of yield-increasing technology. No structural changes in the sowing pattern are contemplated. Corn and wheat will remain the leading crops and will continue to occupy close to 55 percent of the cultivated land.

An expansion of the so-called "Crop Production System" (CPS) to more farms will continue but at a somewhat slower pace than in the past. The goal for 1980 is to have 1.6 million ha, about one-third of the cultivated land, in the system. The CPS, using uniform machinery and scientific cultivation techniques, has provided yields in the participating enterprises far above the national averages. This system was pioneered with corn in 1971 on 39,000 ha and spread to several other crops--wheat, rice, sugarbeets, sunflower, soybeans, and vegetables--encompassing 900,000 ha by 1975 and 1.3 million ha in 1977.

The targeted increases for wheat, potatoes, and sunflowers are larger than the planned average increase for all crops whereas the increases for corn and sugarbeets are somewhat lower. If the targets are met, grain output will approach 14 million tons by 1980 and will provide 2.5-3 million tons of wheat and corn for export, while sugarbeets and potatoes will satisfy domestic requirements. Vegetable production is

scheduled to expand 60 percent by increasing the area under cultivation and by obtaining higher yields. Fruit production is planned to rise 33 percent, and grapes 21 percent.

Table 13--Hungary: Crop yields and targets per hectare

Commodity	1971-75	1977	1980 plan	1980/ 1971-75
	Quintals			Percent
Wheat	33.2	40.5	44	4.1
Corn	41.7	46.9	52	3.2
Sugarbeets	329.4	318.7	400	2.8
Potatoes	117.8	121.2	180	6.2
Sunflowerseed	12.4	15.3	17	4.6

The 1976-80 plans prepared by the individual collective farms surpassed in aggregate the national plan targets. Imre Kovacs, Deputy Minister of Agriculture, finding some plans unrealistic, voiced scepticism about the ability of some collectives to fulfill their own plans. 2/ Some farms lack the technical material base and other preconditions to justify the expectations. Mr. Kovacs was particularly concerned that the production of labor intensive commodities such as vegetables, fruits, grapes, and tobacco may not expand according to the plans. In the first 2 years of the FYP, yields for potatoes and sugarbeets lagged behind schedule.

The large socialized farms must surpass the national average production growth goals because of the projected stagnation in output of small operators. The small producers who use household allotments or auxiliary farms are important contributors to total output, and the outlook for their production is that it will be one-third below the national target. Their share in total output was about 36 percent during 1971-75, but this is expected to decline to 30 percent by 1980. It is expected, however, that the decline in the small producer's output will be less pronounced for crops than for livestock.

Table 14--Hungary: Cropland in use

Commodity	1971-75	1977	1980 plan
		Million hectares	
Wheat	1.3	1.3	1.2
Corn	1.4	1.3	1.5
Sugarbeets	0.9	0.12	0.13
Sunflowers	0.11	0.14	0.14-0.15
Soybeans	0.02	0.03	0.04-0.05

2/ Nepszabadsag, October 2, 1976, Budapest.

The only significant change that is planned is a shift from wheat to corn and an expansion in oilseed area. The planned sugarbeet area for 1980 was achieved by 1976 and is expected to remain close to the planned level. The previous intentions of extending soybeans to 100,000 ha have been significantly scaled down. Low yields of soybeans compared with those of corn required heavy price subsidies to soybean producers to make their production comparatively profitable. Sunflower area expanded rapidly; with an increased output and more use of varieties with higher oil content, the production of vegetable oil should increase by 40 percent during this FYP.

Plans for livestock are more modest than for crops. The principal emphasis will be on cattle husbandry--the most backward sector of Hungarian agriculture. The plan calls for cow numbers to rise to 860,000, an increase of 100,000 between 1976 and 1980 (table 4). Fulfillment of the plan began slowly with an increase of only 20,000 head in 2 years. The socialist sector, which now maintains three-fifths of the cow inventory, is supposed to account for all the planned increment. To do so will involve a 25 percent increase in its stock.

The Hungarians developed an import program during 1971-75 to revitalize the domestic breed and to increase milk production. Imports, predominantly from the United States, included 12,679 heifers, 52 bulls, and 99,404 units of sperm principally of the Holstein-Friesian breed. The imports abated during the current FYP.

The import program of Herefords for beef production also lost momentum. The Hungarian trade deficit and the European Community beef import restriction reduced the urgency for this project. However, the long-term goal of establishing two independent cattle sectors is not abandoned. The ultimate aim remains to establish a highly productive dairy herd, as well as a grass-fed, less labor intensive, beef cattle industry.

No inventory target has been set for hogs. The goal is a 9-10 percent increase in slaughter. Since no increase is expected on household or auxiliary farms, the socialist sector must increase its production by about 15 percent to help meet the national plan. Reducing the high mortality rate is considered one of the main challenges for improvement.

Meat production recovered in 1977 to a high of 1.9 million tons live weight, slightly above the record level attained in 1975. The 1976-80 plan calls for increases of 2 percent for cattle slaughter, 10 percent for hogs, 33 percent for mutton, and 14 percent for poultry to realize a total output of about 2 million tons live weight by 1980. The planned buildup in cow numbers will retard beef production. Compared with the 1971-75 average, milk production during 1976-80 is planned to increase 15-16 percent and egg production 14-15 percent.

Investment and Input Goals

The agricultural investment target for 1976-80 is $5-$5.2 billion. This is 28 percent above the actual investment expenditures in 1971-75, but only 3 percent higher in constant prices. Agriculture's share will be 12 percent of the total investment allocated to the socialized sector of the economy. Investment allocation favors mechanization over new construction, and new machinery accounts for 60 percent of the total planned investment in agriculture. Consequently, by 1980, mechanization levels should be 97-98 percent for small grain production and harvesting, 75-80 percent for corn harvesting, 97-98 percent for sugarbeet harvesting, and 58-60 percent for potato harvesting.

According to the plan, the number of tractors in use will decline, although the average horsepower will increase about 50 percent. The number of combines in use will remain stable, but the capacity of new ones will be greater.

Fertilizer application is projected to increase by one-third, to 2 million tons nutrients (290-300 kg per hectare of agricultural land). The use of plant protection agents is projected to rise 52-57 percent. Funds for purchasing fertilizers and other chemicals must come from enterprise revenues.

New irrigation equipment is to be installed on 100,000 ha and old equipment remodeled on 180,000 ha. New stalls are planned for 120,000 cows, 860,000 hogs, and 620,000 sheep. While much of the investment will derive from enterprise funds, State counterpart funds granted to certain projects will continue. Subsidies to collective farms not favorably endowed with natural resources will amount to about $24 million.

Food and Feed Industry

The food and feed industry is slated to grow faster than agricultural output. Enlarging the processing capacity will improve the marketability of agricultural products for both the domestic and foreign markets. The growing mixed-feed industry is a key element in making livestock production profitable and competitive on the world market.

The food industry plan calls for investment totaling $1.8 billion during the FYP; this represents an annual growth rate of 12 percent. For increasing meat-processing capacity, $370-$480 million will be allocated. A new vegetable oil factory, now in the planning stage, will double present production. The investment ratio between the food industry and agriculture will change from 27:100 in the past to 38:100 during 1976-80.

Existing factories will increase their sugar-processing capacity by 26 percent, and a new factory with daily sugarbeet-processing capacity of 6,000 tons is under construction. In 1980, 44,000 tons of sugarbeets will be processed daily, which will shorten the sugar campaign to 125 days from 150 in 1975. Sugar production from corn, with an annual capacity of 45,000 tons of liquid sugar, recently began. Canning facilities will be expanded. Processed food exports are to increase 40 percent, primarily from production increases of 43 percent for salami and 87 percent for canned meat.

The new meat-processing factories will make better use of the byproducts. Blood, bones, and inedible offal will be converted into animal feed; dairy byproducts--skim milk and whey--will be converted to powder. The new plants should also produce enough milk powder to eliminate imports. Some ongoing experiments in synthetic protein production have raised hopes that protein from natural gas will be obtained by 1980 on an industrial scale.

The mixed-feed production capacity was about 5 million tons in 1975, but many factories are technically obsolete and have inadequate storage; a revitalization of this sector is also being considered.

Labor, Income, Consumption, and Prices

The population growth of 0.5 percent annually between 1939 and 1960 was among the lowest in Eastern Europe. Consequently, industry absorbed a steady outflow of agricultural labor. Agriculture accounted for 23 percent of the total labor force in 1975; in the current FYP, a further decline of 120,000-130,000 full-time agricultural workers is anticipated. With growing income distributed among fewer laborers, per capita income of cooperative farmers should reach that of other sectors of the economy by 1980.

The diet will continue to improve with more protein, vegetables, and fruit and less cereal consumption.

Table 15--Hungary: Food consumption per capita

Product	1975	1980 plan
	Kilograms	
Meat including edible offal	70	76-78
Milk and milk products 1/	125	154
Flour	121	113
Vegetables	88	98-100
Fruit	75	93-95

1/ Excludes butter.

A larger selection of frozen food, ready-to-eat food, and refreshment drinks will be available in retail stores.

In mid-1976, the Government increased food prices significantly. Prices of meats, vegetables, and fruits were raised by about one-third. In turn, the workers received higher wages and social benefits allowing their per capita real income to increase about 1 percent. Some people fared better than average; others lost purchasing power.

The central control of prices strengthened in the past few years and further price actions may be instituted to bring Hungarian prices and price ratios closer to those on the world market. Consumer price supports in 1975 cost $1.1 billion, about 8 percent of the national budget, and the Government is determined to reduce this burden. Retail prices of coffee and chocolate were raised significantly in 1977.

Agricultural Trade

Foreign trade has particular significance in the Hungarian economy. Its value in 1976 was 37 percent of national income and it is projected to increase to 45-50 percent by 1980. Agriculture accounts for one-fourth of total exports and 12-16 percent of imports, and thus makes a positive contribution to the foreign trade balance.

Since mid-1973, Hungary's terms of trade in hard currency transactions have worsened. In addition, since 1975, the terms of trade on ruble account with other CEMA members have deteriorated. To avoid the impact of the rising costs of imports on domestic retail prices, in 1976, the Government absorbed about $2.2 billion--close to 14 percent of the national budget.

Between 1976 and 1980, agricultural and food product exports are planned to increase 40 percent, further increasing agriculture's importance in balancing foreign trade. If, as planned, grain production reaches 14 million tons with 11-11.5 million tons utilized domestically, the Hungarians will have 2.5-3 million tons of grains--wheat and corn--available for exports. An even greater share of output of some products is currently exported: 75 percent of canned foods, 30-40 percent of cattle and poultry, and 25 percent of wine.

Like other East European nations, Hungary intends to overcome the adverse change in terms of trade by increasing exports faster than imports. The plan calls for a 42-45 percent increase in total exports to centrally planned countries and a 60-65

percent increase to the rest of the world. The comparable import plans are 38-40 percent and 36-40 percent, respectively.

Hungary has long-term agreements with CEMA members to export 0.5-1 million tons of grain annually. The agreement with the U.S.S.R. alone called for 370,000 tons of grain exports in 1977 with a gradual increase to 460,000 tons in 1980. Exports of slaughter cattle to the U.S.S.R. are set at 32,000 tons annually, exports of beef at 18,500 tons. Of the total Hungarian agricultural exports, about 25 percent is destined for the U.S.S.R. Grain, cattle, and beef are to be bartered for the next 10 years for oil, gasoline, cotton, and wood products in excess of quantities specified in previous contracts. The Soviet Union is also the leading market for Hungarian fruits, vegetables, wine, and poultry. The part of bilateral trade in excess of previous contracts is settled in hard currencies, and settlements apparently are made at world market prices.

Cotton and protein feed are the principal agricultural imports. The share of mixed-feed in feeding rations is slated to increase from 50 percent at present to 60 percent by 1980; total oilmeal consumption is, thus, projected to increase 17 percent. Domestic sources are expected to cover more than half of the increase, while imports will gradually increase by 7 percent.

According to Hungarian researchers, the planned annual 7 percent increase in agricultural exports is feasible only under certain assumptions:

1. The domestic agricultural production increases 3-4 percent annually as planned.

2. About half of the increment in production will be released for exports.

3. Producers' choices will be stimulated through better information or incentives. 3/

These stiff requirements cast doubt on Hungary's ability to achieve the planned export goals.

Besides the growing imports of protein feed both of plant and animal origin, imports of breeding animals, cattle hides, and seeds will continue from the West, as well as imports of complementary foods like coffee, cocoa, and citrus fruits. Some Western imports of supplementary products like sugar, barley, tobacco, and certain canned foods will depend on their availability from CEMA members.

During 1971-75, Hungary's agricultural imports from the United States grew annually and averaged $27 million a year; its agricultural exports to the United States also increased gradually and averaged $8 million. Soybean meal, the leading import, and processed meat, the leading export, have the best potential to expand. In 1976-77, the average value of imports from the United States was $33 million and $23 million for exports to the United States.

It is of some concern to the Hungarian Government that, under the present export trading mechanism, Hungarian producers are not participating in profits and losses on foreign markets, but are isolated from the world price fluctuations by intermediary trading companies. They are, therefore, not apt to react quickly to buyers' quality specifications and specific foreign demands.

3/ Bela Szalai, "Agricultural Export and the Foreign Trade Balance," Tarsadalmi Szemle, March 1977.

Food marketing difficulties and discontent of the population about inadequate supplies forced the Polish Government in 1976 to modify the draft of the 1976-80 plan, and shift to agriculture and the food industry investment funds that were previously allocated to other sectors of the economy.

The plan, revised in the fall of 1976, allocated 22 percent of the total investment to agriculture and the food economy during 1976-80. Compared with the investments during 1971-75, this represents a 55-percent growth in agriculture and food-related investments, instead of the 31 percent originally planned. Despite the large increase in investments, the goal of 16-19 percent growth set for agricultural output remained close to the level achieved during 1971-75. A large part of the investment will be spent for construction and for new machinery to replace what is obsolete and worn out, and to replace human labor that has retired or been absorbed by other sectors. The principal plan indicators are shown in table 1.

Production Targets

The plan calls for a growth of 20-23 percent in crop output and 13-16 percent in livestock production to narrow the gap between domestic feed production and feed requirements. The primary emphasis is on grain and sugarbeet production.

Table 16--Poland: Total area, yield, and production

Item	Grain	Sugarbeets	Potatoes	Rapeseed
		Million hectares		
Area:				
1971-75	8.23	0.45	2.65	0.30
1976-77	7.87	0.54	2.45	0.40
1980 plan	8.50	0.60	2.30	0.40
		Quintals/hectare		
Yield:				
1971-75	25.4	309	177	18.30
1976-77	25.6	287	186	20.80
1980 plan	30-31	330	200-210	22.50
		Million tons		
Production:				
1971-75	20.9	13.8	47.1	0.56
1976-77	20.1	15.5	45.6	0.83
1980 plan	25.5-26.4	20.0	47.0	0.90

The production goals envisage increases in area for grain, sugarbeets, and rapeseed but a reduction for potatoes. The planned 8.5 million ha of grain will account for 55 percent of arable land, but the rise in output hinges more on larger yields than increased area. Farm managers are encouraged to use improved seeds, to shift

from rye and oats to higher yielding wheat and barley, to boost fertilizer and plant protection chemical usage, to adopt more effective management techniques, and to take advantage of large-scale economies by increasing the size of production units through cooperation.

During the past few years, corn area for grain has increased from an experimental 5,000 ha in 1974 to 15,000 ha in 1975, and to 55,000 ha in 1977. If corn production proves successful in coming years, the area will expand to 400,000 ha by 1980. French corn varieties, which require shorter vegetative period and yield up to 50 quintals per ha are being used. Much of the corn planted for grain, however, did not develop well in 1977 because of unfavorable weather.

To increase grain and sugarbeet areas, some potatoes and forage crops must be displaced and all idle land put under cultivation. The drop in potato area is expected to be offset by a gain in yield, to maintain the 1971-75 average output of 47 million tons.

An increase of more than one-third is planned in fruit production between 1975 and 1980 with the help of enlarged producing units and cooperation of farmers. Construction of 100 large greenhouses should result in a threefold increase in vegetable production.

Due to unfavorable weather, the first 2 years of the current FYP resulted in shortfalls rather than in a progress toward achieving the crop production goals. Besides disappointing yields in 1976 and 1977, the sown area of grains was well below target levels.

Table 17--Poland: Livestock inventory and production targets

Item	1975	1977	1980 plan	Annual increase 1975-80
	Thousands			Percent
Cattle (in June)	13,254	13,019	15,000	2.5
Hogs (in June)	21,311	20,051	23,500	2.0
Sheep (in June)	3,175	3,934	4,200	5.8
Horses (in June)	2,237	2,062	1,700	-4.4
	1,000 tons			
Cattle (live weight)	1,325	1,334	1,650	4.5
Hogs (live weight)	2,300	1,932	2,820	4.1
Poultry (live weight)	340	406	570	10.9
Milk	16,400	16,800	20,000	4.0
	Millions			
Eggs	8,000	8,400	9,000	2.4

In the livestock sector, the revised Polish plan calls for rebuilding the hog inventory by 1980 to the 1975 level and increasing the number of cattle and sheep. On the other hand, the number of horses is to be reduced by one-fourth to release feed for more productive use. After the number of hogs declined by 5 million in

1976, the increase of 4 million in 1977 was a welcome relief. The Polish Government is making an all out effort to maintain the momentum of increasing hog numbers. To offset the feed shortage caused by a poor grain and potato harvest in 1977 the Government imported record quantities of grain during the 1977/78 marketing year.

During 1977, the plan to raise inventory to 15 million cattle and 23.5 million hogs was scaled down to 14-14.3 million and 21-22 million, respectively. It has been also realized that the beef and pork production goals will not be attained. Andrzej Kacala, Deputy Minister of Agriculture, assumes increases of 14.1 percent in meat production, 16.5 percent in milk production, and 16.7 percent in egg production during this FYP. 4/

Investment and Input Goals

Agricultural investment is to accelerate during 1976-80 at the expense of other sectors. The latest 1976-80 investment target for agriculture and food economy is $17 billion with an especially large allocation of funds in 1977. This represents 22 percent of total investments compared with 20 percent during 1971-75. The sources of the investments include the national budget, enterprise profits, and bank credits. The rate of investment will increase principally for mechanization, both for the small machines used on private farms and the large ones used in the socialized enterprises.

Table 18--Poland: Machinery output

Type of machine	1971-75	1976-80 plan
	Thousands	
Tractors	189	288-300
Tractor-drawn mowers	75	113
Grain combines	11	21-23
Potato harvesters	4	25-27

Domestic factories and the U.S.S.R. supplied most of the tractors during 1971-75, and will remain the principal suppliers during 1976-80. In recent years, Polish tractors of 35-75 hp have been manufactured under a Massey-Ferguson-Perkins license. Concomitant with these increases in machinery, the Government plans to improve transportation facilities and storage and processing capacity.

Requests for funds to expand the scale of production will receive priority consideration. The building of sizable numbers of village residences and 1 million stalls each for cattle and hogs are planned. Sprinkling systems will be installed on 30,000 hectares and land improvements will be made on 850,000 hectares of arable land and 320,000 hectares of pasture and meadow.

Also, the Government is going to spend about $33 billion to finance expropriation of 1.6-2 million hectares of private land for inclusion in socialized farm units. Owners will be either compensated directly or retired and pensioned. The

4/ Andrzej Kacala, "Basic Tasks of Agriculture to 1980", Rada Napodova-Gospodarka-Administracja, January 29, 1977.

planned takeover represents an acceleration, compared with that of 1971-75, when just 700,000 ha of private land were expropriated.

Fertilizer consumption in 1980 is targeted at 250 kg/ha of agricultural land, compared with 180 kg/ha in 1975. The nitrogen and phosphate fertilizers required by the farm sector are manufactured domestically, but all the potash and raw materials for fertilizer production are imported. At present, Poland's most significant investment in the fertilizer industry is the enlargement of the Police chemical factory. By 1980, this complex will produce about one-third of Poland's fertilizers. Domestic factories also should quadruple the supply of plant-protecting agents by 1980.

Food and Feed Industry

Investment in the food and feed industry, which tripled in 1971-75 compared with the 1966-70 outlays, will grow by 35 percent during 1976-80. The planned increase in production capacity, coupled with increased efficiency in production, should result in a 37 percent increase in food industry output.

All food categories will participate in the expansion program to varying degrees. Poultry, canned meat, and vegetable production will grow the fastest. The improvements will be both quantitative and qualitative. New varieties will be introduced, such as baby foods, semiprepared and precooked foods, frozen foods, and various food items in plastic packages.

Construction plans include 5 egg-laying establishments, each with an annual capacity of 100 million eggs, 7 poultry slaughterhouses, 14 dairy plants, 4 meat-packing plants, 2 sugar mills, 5 fruit- and vegetable-processing plants, and 3 freezer plants.

Investment in the feed-mixing industry should grow 21 percent. The mixed-feed supply target is 10 million tons, compared with 8.5 million tons produced in 1976. This goal should be achieved with the opening of 19 new and highly automated feed-mixing plants, several of which will be imported. Among the domestically produced protein ingredients, meat meal production should reach 150,000 tons in 1980, up from 103,000 tons in 1975. With the help of foreign licenses, Poland's powdered milk production should reach 200,000 tons, up from 104,000 tons in 1975. The byproducts of the sugar industry will be dried and enriched, providing more valuable feed than the pulp.

Labor, Income, Consumption, and Prices

During 1976-80, 1.1 million new laborers will be added to the work force, a decline from the 1.9 million absorbed by the economy during 1971-75. With the decline of the number of people attaining working age, the nonagricultural sectors will be better able to employ the rural outflow. In contrast with the annual population growth of 1.6 percent during the fifties, the growth rate in the seventies has been less than 1 percent, and is expected to remain at this lower rate during this decade.

It is assumed that real wages will increase 16-18 percent during 1976-80, far below the increases during 1971-75. Nevertheless, the higher income will exert pressure on the consumer goods market. During 1971-75, retail prices of staple foods--like bread, meat, and sugar--remained stable in Government stores. The sharp increase in income and stable prices resulted in excessive demand for consumer goods, particularly meat, which was not in adequate supply. In the meantime, prices paid to producers increased, reducing the margin between retail and producer prices. Thus, in theory, farmers would have fared better by selling their grain and livestock to the State and purchasing their bread and meat in the shops.

In June 1976, price-income adjustments were announced by the Government which increased retail food prices and farm producer prices. The retail food price increases triggered sporadic rioting and, as a result, were rescinded before taking effect. The higher producer prices were retained to promote more output through improved profitability. This decision forced the Government to increase its subsidy of retail prices.

Maintaining the artifically low food prices cost the Government $3 billion in 1976 and will continue to hurt the country's finances. The present price structure caused the supply-demand imbalance and provided false signals for resource allocations--and will continue to do so until it is changed. In response to high income elasticity and relatively low prices, the per capita consumption of meat increased by 17 kg (32 percent) during 1971-75. During 1976-80, a further increase in consumption of 10 kg (14 percent) was initially expected; however, the target was reduced to 5 kg at the end of 1976. Per capita meat consumption actually declined in 1977 below the 70 kg attained in 1975 and 1976 because of inadequate supply.

It is expected that as income grows, a smaller share of earnings will be spent on food from the market basket. In 1974, wage and salary earners spent 41.6 percent of their disposable income for food, a decline from 43.2 percent in 1970.

Table 19--Poland: Food consumption per capita

Product	1975	1980 plan
	Kilograms	
Meat and meat products	70	75
Milk and milk products	279	320
Butter	7.1	8.5
Sugar	43.5	46
Potatoes	170	150
Grain products	120	108
Vegetables	94	120
Fruits	36	60
	Units	
Eggs	206	230

According to the plan, a shift in the diet from potato and grain products toward more meat, fish, eggs, dairy products, fruits, and vegetables should occur.

The Government is searching for politically and socially acceptable remedies to restore the economy from its present distorted state. A ration imposed on sugar halted hoarding and assured an orderly domestic supply and surplus for exports. Vegetable and fruit prices were raised in Government shops and the new prices are enforced at farmers' markets. Although meat prices in most Government shops are maintained at the pre-June 1976 level, farmers are allowed to charge up to 40 percent more on free markets; at the same time, some Government-owned "commercial shops" sell specialty meats at much higher prices. This two-tiered system of official toleration

of higher prices while providing a limited supply of meat at stable prices may eliminate black markets without damaging the credibility of the Government.

In June 1976, after rescinding the ill-conceived steep increases in food prices, the Government, instead of making hasty new decisions, appointed five committees to give recommendations within 1 year on: (1) conceiving and implementing a retail price policy; (2) improving agricultural output and marketing; (3) eliminating waste and encouraging savings; (4) appraising agricultural production potential and reserve capacity; and (5) proposing and implementing a new housing policy.

The detailed recommendations of the committees have not been made public so far. The only significant disclosure relates to the findings of the committee on retail prices. This includes the well-known facts that the distortion in retail prices causes misallocation of resources, and that retail prices of basic foods do not cover the costs of production. The Government, however, has decided not to take any drastic actions, and to rely only on gradual remedies, like the two-tier system of retail meat prices.

Agricultural Trade

The Polish trade balance has deteriorated seriously since 1973, having accumulated a deficit of $9.6 billion in 4 years. The Government is anxious to reverse the trend, and the plan for 1976-80 calls for an annual 15.5 percent increase in exports and a 9.4 percent increase in imports. Lagging exports in 1976 and 1977, however, indicate that the FYP goals will be hard to meet.

Polish agricultural trade has operated at a deficit for a long time, but the export-import ratio has especially worsened since 1974. In previous years, the cost of imported feed was at least offset by exported livestock products. But for the past few years, the value of feed imports, having increased as a result of poor harvests, has surpassed the value of meat exports.

In the past 2 years, over 55 percent of Polish exports went to CEMA members, while imports from these countries were less than 45 percent, indicating that the problem of a negative balance of trade persists only with non-CEMA countries. Until its economy stabilizes, Poland must take advantage of foreign credits in financing its imports. Responding to the Polish request, the United States has authorized a $500 million Commodity Credit Corporation (CCC) credit line for fiscal 1978. The line is largely for grain purchases, but soybean, soybean-meal, vegetable oil, cotton, and tobacco were also declared as eligible for CCC credits. Poland is also using credits from Western banks and from the U.S.S.R. for financing some specific programs.

In agricultural trade with the United States, grain, protein feed, cotton, and cattle hides are the principal Polish imports and processed meat the principal export. An understanding between the United States and Poland calls for 2.5 million tons of U.S. grain (plus or minus 20 percent) imports annually until 1980. Total Polish agricultural imports from the United States peaked in 1976 at close to $500 million and exports to the United States at $144 million. The trade in both directions declined in 1977, but U.S. exports are expected to recover for the years 1978-80.

In 1977/78, Poland must import an unprecedented 7 million tons of grain and over 1 million tons of oilmeals to sustain an adequate feed base for the livestock on hand, as well as to create a favorable climate for farmers to rebuild their depleted herds. Poland must continue to import significant amounts of feed for several more years. To that end, Poland has agreed to import 600,000 tons of grain from France, with an annual option to renew, and has entered 3-year agreements to import annually

500,000 to 800,000 tons of grain from Canada and 300,000 tons of grain from Sweden. The U.S.S.R. and some East European countries will probably supply 1 million tons annually. During 1976 and 1977, a relatively low hog inventory forced Poland to reduce its traditional meat exports and to import 50,000-100,000 tons of meat, mostly beef.

In its foreign and economic relations, Romania maintains friendly relationships with all nations in the world; internally, however, it is a rigid autocracy. Relative abundance of raw materials and the absence of foreign troops on its territory permit Romania to be independent in its economic policy. Romania has established closer economic and financial ties with the West than any other member of CEMA. It is affiliated with the World Bank and the International Monetary Fund, and is eligible for loans from these institutions.

Romanian agriculture is largely socialized, with cooperative farms occupying about 60 percent and state farms 30 percent of agricultural land. The remaining 10 percent is in small private farms in remote or mountainous areas where land is not well suited for mechanization.

The central direction of agriculture is exemplified in an article by the Minister of Agriculture, Angelo Miculescu. 5/ Mr. Miculescu urged farm managers to "optimize management practices" and added that when the optimization process is defined, the procedure will become law and adherence will be compulsory. Central control is also found in the role delegated to machine stations as the sole providers of heavy machinery to the cooperatives. In other CEMA nations, the machine stations do repair work only with the machinery having been distributed among the cooperative farms and put under the jurisdiction of farm managers.

As in other CEMA countries, the Romanian economy is guided by 5-year plans. But in Romania, the plan targets are developed in two stages and are changed frequently during the plan period. Initially, the party congresses lay out directives; afterwards, the central planning department makes modifications. The modified targets, as adopted by the Assembly, are always more ambitious than the first directives. This sequence of plan upgrading is evident in the evolution of the 1976-80 plan.

Table 20--Romania: Two stages of 1976-80 five-year plan

Item	Plan directives	Adopted plans
	Indexes 1980/1975	
National income	154-161	161-168.5
Gross industrial production	154-161	162-170
Real income	135-137	135-140
	1976-80/1971-75	
Total investment	165-172	183.4
Gross agricultural production	125-134	128-144

According to the plan, industrial output will grow faster than agricultural. If the plan is realized, agriculture's share in national income will decline from 15.6 percent in 1975 to 11.6 percent in 1980. During the same period, the share of fixed

5/ Agricultura Socialista, July 30, 1977.

capital invested in agriculture is projected to decline from 14.9 to 13 percent and the share in employment from 38.2 to 27.1 percent.

In the past 15 years, from its relatively low base, the Romanian economy experienced the fastest growth among the East European CEMA members. The distribution of national income favored investment while personal income and consumption were restrained. The Government's preference for industrial development relegated agriculture to a secondary role. A comparatively lower reward for agricultural work created a significant gap between per capita incomes of urban workers and farmworkers. This gap has narrowed in the past few years. The low earnings from farming, coupled with job opportunities in industry, contributed to a gradual outflow of workers from agriculture to industry.

Romanian workers accepted the strong centrally imposed discipline and succeeded in meeting and often overfulfilling the ambitious industrial plans, but shortfalls in agriculture kept the national income growth below planned levels during 1966-70. Agricultural production increased during 1971-75 despite unforeseen natural calamities. Romania suffered from serious floods in 1970 and 1975 and from unfavorable weather patterns in some years. The effects of the 1977 earthquake on that year's agricultural accomplishments were apparently not serious.

Table 21--Romania: Increases in economic indicators 1/

Item	1965-70		1970-75	
	Plan	Actual	Plan	Actual
	Percent			
National income	50	45	69-76	71
Gross industrial production	65-73	75	69-76	84
Gross agricultural production	26-32	10	36-49	37

1/ See table 1 for indicators for the 1976-80 plan.

Production Targets

Balanced growth is being pursued between the crop and livestock sectors during the present FYP. During the 1971-75 plan, the livestock share of total agricultural output grew from 41.2 to 43 percent. This share is expected to be maintained during 1976-80, while projections to 1990 envisage an equal share of crop and livestock sectors in total agricultural output.

The plan calls for increasing the output of all field crops during 1976-80. To support the growth, about 125,000 hectares of additional land will be put in productive use through reclamation. But other factors, such as investments in machinery, buildings, fertilizer, land improvement, and introduction of technological and managerial innovations, are expected to play a more important role in increasing yields. The following average yield targets for selected crops are set for 1976-80 compared with results in the 1970's.

Table 22--Romania: Crop yields and targets per hectare

Commodity	1971-75	1976-77	1976-80 plan	Increase 1976-80/1971-75
	Quintals			Percent
Wheat and rye	22.1	28.1	30-31.5	35.8-42.5
Corn	26.8	32.4	35-38	30.6-41.8
Sunflowerseed	14.5	15.5	20-21.4	37.9-47.6
Sugarbeets	221.4	245.0	340-360	53.6-62.6
Field vegetables	161.0	NA	190-200	18.0-24.2

NA = Not available.

The best progress so far has been obtained with wheat. Annual growth rates in 1976 and 1977 suggest that planned goals for sunflowerseed and sugarbeets will not be reached. According to the current plan, extraordinary yield increases are slated for sugarbeets while relatively modest increases are set for vegetables.

Besides yield targets, total crop production targets have also been announced. These targets reveal a necessary shift in land use to increase the planted area for sugarbeets and soybeans. Among the grains, corn area is slated to increase.

Table 23--Romania: Total crop production and targets

Commodity	1971-75	1976-77	1976-80 plan	Annual increase 1976-80/1971-75
	Million tons			Percent
Grains	14.8	19.2	20-22.4	6.2- 8.6
Sunflowerseed	0.76	0.8	1-1.14	5.6- 8.4
Soybeans	0.22	0.2	0.54-0.58	19.7-21.4
Sugarbeets	4.76	6.6	8.6-9.4	12.6-14.6
Potatoes	3.43	4.5	4.6-4.9	6.0- 7.2
Field vegetables	2.7	3.4	4.2-4.3	9.2- 9.7
Fruits (including grapes)	2.25	2.85	3.8-4.0	11.0-12.2

Based on the good results of 1976 and 1977 grain production, the original 1980 target of 23 million tons was increased to 24 million tons at the end of 1977. Using fertilizers more scientifically and efficiently, reducing harvest losses through timely use of combines, and extending the area of land under irrigation will play important roles in implementing the plans.

If plant-breeding research is successfully applied, varieties of Romanian wheat will be grown on 80 percent of the sown area in 1980 compared with 40 percent in 1975. Domestically developed hybrid corn was used on 90 percent of the corn area in 1975. The plan also calls for increasing production of flax and hemp fiber. For improving meadows and pastures, $250 million will be allocated, and forage supply will

be augmented by doubling the availability of beet pulp through expanded sugarbeet production.

Vegetable production will be enhanced through newly built greenhouses, increasing the area from the average 1,016 ha in 1971-75 to 1,648 ha by 1980. The territorial distribution of vegetable planting will be improved in order to achieve self-sufficiency in each county. New orchards are to be established on 48,500 ha.

Growth in the livestock sector will be based both on increased inventories and improved efficiency in animal husbandry. The number of hogs is slated to grow at the fastest pace; within the cattle sector, the number of cows should increase. The following livestock production goals have been set for 1980:

Table 24--Romania: Livestock inventory and goals

Commodity	Beginning of year: 1971-75	Beginning of year: 1978 preliminary	Beginning of year: 1980 plan	Annual increase 1980/1971-75
	1,000 head			Percent
Cattle	5,678	6,300	7,500	4.0
Cows	2,429	2,660	3,700	6.2
Hogs	8,088	9,700	12,000-13,000	5.8-7.0
Sheep	14,115	14,900	19,000-19,500	4.3-4.8

Table 25--Romania: Livestock production and goals

Product	1971-75	1976	1976-80 plan	Annual increase 1976-80/1971-75
	1,000 tons			Percent
Meat (live weight)	1,770	2,157	2,500-2,687	7.5-8.7
Cow milk	3,985	4,621	6,000-6,400	8.5-9.9
	Million units			
Eggs	4,644	6,153	6,000-6,500	3.7-4.9

To increase livestock production, the use of industrialized methods in State farms and cooperatives will expand.

By 1980, industrialization of production is scheduled to reach the following levels: for broilers, 100 percent in State farms and 42 percent in cooperatives; for eggs, 100 percent in State farms and 60 percent in cooperatives; for pork, 70 percent in State farms and 63 percent in cooperatives.

For livestock numbers and output, growth in the first 2 years of the FYP fell behind schedule. The only gains commensurate with the plan have been in poultry meat, and egg production.

Investment and Input Goals

During the current FYP, $10 billion will be allocated to the agricultural sector from the central funds. This is 56 percent more (in 1963 prices) than the actual investment in 1971-75, and represents a 9.3 percent growth rate in the agricultural sector compared with the 12.9 percent planned for the entire economy. Compared with the 1966-70 investment, the annual growth rate of total investment during 1971-75 was 10.7 percent, while investment growth rate in agriculture was 8.3 percent. The investments will be used for mechanization, land improvement, irrigation, expanding and modernizing vineyards and orchards, building greenhouses and storage, and remodeling livestock shelters.

During the previous and current FYP, World Bank loans contributed to the investment funds. Between 1974 and 1976, Romania received 9 loans totaling $460 million. The World Bank's agricultural-related loans included $240 million for irrigation and flood control and $60 million for the Tecuci fertilizer plant. An additional $60 million loan for an irrigation project, and a $71 million loan for pork production and processing were approved in 1977. Also in 1977, the IMF approved $132 million drawing rights valid through 1978.

According to the plan, agriculture will receive 70,000 tractors, 16,300 combines, and 11-11.5 million tons of fertilizer in nutrients between 1976 and 1980. To meet these goals, the production capacity of the machinery and fertilizer industries will be increased. Romania produced 50,000 tractors in 1975--of which about 36,000 were exported. Romania expects to raise production capacity to 60,000-65,000 annually by 1980. In addition to tractors, a large array of cultivation implements will be made available gradually to increase the mechanization level of all phases of agricultural production. The mechanization of small grain and soybean production was reportedly completed during 1976. Full mechanization of corn, sunflower, and forage cultivation was scheduled for completion in 1977, potatoes in 1978, and sugarbeets, vegetables and fruits, and livestock feeding in 1980. According to a recent Romanian report, however, corn has fallen behind schedule with less than 50 percent to be harvested by machine in 1978. 6/

In 1971-75, four compound fertilizer factories were built with Western technological assistance and financial support from the World Bank. During 1976-80, two factories in Craiova and Tirgu Mures will be enlarged, and new plants will be constructed in Piesti and Tecuci. By 1980, the plan projects 3 million tons of fertilizer available for domestic agriculture and 800,000 tons for exports. Thus, fertilizer consumption per hectare of arable land is slated to reach 285 kg in 1980, more than triple the 1975 level. It is also expected that 70,000 tons of plant-protecting agents will be domestically produced to eliminate the need for imports.

Twice during this decade, Romania has experienced serious flooding. To alleviate those conditions, flood control and irrigation are parts of a long-range project--scheduled to be completed by 1990--called the "National Program for Management of the Hydrographic System."

By 1980, the land improvement program should increase the amount of irrigated land by 1.2 million ha to a total of 3 million. In addition, 1.1 million ha will be drained, 1 million ha protected against erosion, and 125,000 ha of unused land reclaimed. The 1980 plan calls for 130,000 tractors to be used (compared with 120,000 in 1975 and 107,000 in 1970), 3.03 million tons of fertilizer (in nutrient) to be used (compared with 929,000 tons in 1975 and 594,000 tons in 1970), and 3.05 million hectares of land to be irrigated (compared with 1.73 million in 1975 and 731,000 in 1970).

6/ C. Glavan, "1978 Agricultural Objectives", Agricultura Socialista, February 25, 1978.

Food and Feed Industry

The food industry's annual growth target for 1976-80 is 9.2 percent. This compares with the 8 percent growth achieved in 1971-75, although 9.3-10.4 percent was planned. Detailed information on location and capacity of new plants is not available. President Nicolae Ceausescu, in his July 11, 1977 address to the Romanian Congress on economic development, emphasized the need for improving the food supply, especially in the areas of bakery products, sugar and dairy products, fish, and canned meats. He also mentioned the need for more prepared and semiprepared convenience foods to ease the burden on the growing number of working women.

Some general guidelines for the food industry include improving efficiency, adopting the latest processing technology, providing wider product variations, and eliminating seasonal fluctuations in supply. To achieve these goals, 215 new facilities will be built and 124 existing plants remodeled. Proposed investments of $2.67 billion in the food industry will double the 1971-75 level. The plan for the food industry was also developed in two stages.

Table 26--Romania: Planned food production increases

Product	1980/1975 Directive	1980/1975 Plan
	Percent	
Meat and meat products	30-40	55
Fish	50-60	180
Milk	35-45	65
Butter	50-60	75
Cheeses	30-40	60
Vegetable oil	20-30	35
Sugar	10-15	30

The capacity of the mixed feed industry, about 5.5 million tons in 1975, is planned to increase to 8-9 million tons by 1980. Soybeans will be processed separately from sunflower in specialized facilities, of which three are under construction.

Labor, Income, Consumption, and Prices

The population growth rate, 1 percent annually between 1960 and 1975, was one of the highest in Eastern Europe. Consequently, during 1976-80, it is projected that 1.2 million additional people will be absorbed into the nonagricultural labor force. The number of agricultural workers is expected to decline by 700,000, 18 percent, in 5 years. These changes in the labor market will reduce agricultural labor's share from 38 percent in 1975 to 27 percent in 1980.

Raising the population's living standard has recently become an important concern to the Government. A program initiated in 1977 boosted the previously planned increase of 18-20 percent in per capita nominal income to 30.2 percent by 1980, with the increases to be gradually implemented. Average wages were raised in July 1977 by 16.6 percent and will be raised again in February 1979 by another 12.6 percent. The real income of an active cooperative farm worker by 1980 should be 20-29 percent higher than in 1975, comprising a dynamic rise from collective work and a lesser

increase from household plot farming. A new labor law enacted in 1977 has regulated the cooperative farmers' remuneration. The law declares the team as the basic productive unit and group piecework as the basic accounting unit. The guaranteed monthly minimum payment has been raised. Bonuses will be paid for exceeding the plan and for length of service at the same farm. This raise in minimum income has helped to narrow the gap between the earnings of workers in industry and agriculture. The minimum wage in agriculture differs by sectors: 1,100 lei per month in crop production; 1,350 lei in fruit and vegetable production; and 1,650 lei in livestock and machinery. The minimum wage increases in 1977 ranged from 10 to 12.5 percent.

The plans for per capita consumption of individual food products were also prepared in two stages.

Table 27--Romania: Planned increases in food consumption per capita

Product	1980/1975	
	Directive	Plan
	Percent	
Meat and meat products	30-40	55
Fish	50-60	180
Milk	35-45	65
Butter	50-60	75
Cheeses	30-40	60
Vegetable oil	20-30	35
Sugar	10-15	30
Eggs	40-50	50
Vegetables	55-60	65
Fruits (including grapes)	30-40	100

Romania does not report per capita consumption by type of food. USDA calculations indicate that per capita meat consumption in 1976 was close to 50 kg, less than in all other East European countries except Yugoslavia. In line with the shift toward diversification of the food industry, more prepared foods, baby foods, and vitamin-enriched canned goods and juices will be provided. More imported tropical fruits and drinks will also be supplied.

Romania was able to fend off inflation during 1971-75 through strict price controls. Retail prices for all goods and services increased only 2.6 percent, while the food component increased 5.5 percent. From 1972 through 1976, Romanian import prices rose hardly more than its export prices--42.6 percent versus 41.8 percent, respectively. The prices of beef, pork, and lamb were raised in 1973 for the producer and retailer. These increases were offset by price reductions for poultry, eggs, and fat. For the period 1976-80, it is anticipated that retail price increases will be kept below 6 percent.

Agricultural Trade

Romania's foreign trade balance has been generally negative in the last 10 years, but it was positive in 1973, and balanced in 1975-77. In 1975, Romania's trade with the centrally planned countries--about 45 percent of its total trade--was the lowest of all Eastern European countries, with the exception of Yugoslavia. Romanian trade

with the CEMA members was generally positive, its deficits occurring in trade with the rest of the world. Romania's trade with developing countries grew from 10 percent of total trade in 1970 to 21 percent in 1976 and is planned to reach 25 percent by 1980.

Romania's agricultural trade has generally been positive. Agricultural exports accounted for 27-29 percent of total exports during 1971-74, but dropped to 23 percent in 1975. Agriculture's share of total imports averaged 17 percent during 1971-75.

The plan for 1976-80 calls for an annual 15 percent increase in exports and 12 percent in imports to improve the balance of payment gradually. The composition of the planned growth in trade, by commodity, has not been published, but the production plans indicate that Romania intends to raise its net export in grains and livestock products and continue the vegetable, fruit, and wine exports at current levels. If successful in meeting the FYP targets, Romania will be able to export sugar and to reduce its imports of oilseed products.

Romania has a tariff system, which has little significance in a country where trade decisions are centrally controlled. The Romanian Foreign Trade Bank supervises all trade transactions and assures that trade is conducted as planned by the Government and that trade organizations adhere to banking and foreign exchange regulations.

U.S. agricultural exports to Romania improved markedly during the 1970's. The highest level, $172 million, was attained in 1976; this was followed by a 25 percent decline in 1977. Agricultural products have accounted for more than 60 percent of U.S. exports to Romania, while agricultural imports have been less than 10 percent of total U.S. imports. Romania generally ran a large annual deficit in its U.S. trade; for 1975-77, however, the deficit shrank to about $50 million annually. Effective January 1976, subject to annual review, the United States granted Most Favored Nation treatment to Romania, which enhanced Romanian competitiveness on the American market. Romania is now eligible for CCC and Export-Import Bank credits which helped U.S. sales, particularly of soybeans. Under a trade agreement between the United States and Romania, signed in 1975, trade representatives are permitted to open offices and advertise their products in each other's country. This is likely to further an expansion of mutual trade.

Grain, oilseeds, oilseed products, and hides and skins are the principal U.S. agricultural exports to Romania. Processed meat accounts for 80 percent of U.S. agricultural imports from Romania. The United States has the potential to expand its exports of soybean products and cotton. Romania may need U.S. grain in years of crop failure and to some extent may continue to engage in buying and selling grains to take advantage of world price movements.

The new "Social Plan of Yugoslavia for 1976-80" was drafted in the second half of 1976 and adopted by the Republics in May 1977. The national production growth targets for this FYP are set at an average of 4 percent annually for agriculture and 8 percent for the food industry. The socialist sector's agricultural growth target is 8 percent annually in contrast to the 3 percent forecast for the private sector.

Planning agricultural output in Yugoslavia is more difficult than in other East European countries. Small producers own nearly 85 percent of the agricultural land, making myriads of individual decisions on 2.6 million farms. Forty percent of private farmers own less than 2 ha; 75 percent own less than 5 ha. These small farms are not easily reached and influenced by extension services. In addition, individual Republics and Autonomous Provinces have the prerogative to pursue local interests that may not always coincide with the economic goals set at the national level. Other problems in apportioning planned targets are the uneven development stages of the Republics and Provinces, differences in soil fertility, and the variations by Republics and Provinces in the ratio of cultivated land to population. In their aggregated indicators, Federal plans must take into account the uneven growth potential and regional constraints caused by resource limitations. The plan must also consider the uneven growth path in the socialized and private sectors.

The socialized sector's share in arable land--the Yugoslav definition includes meadows--was 23 percent in 1975. This is supposed to increase to 27 percent by 1980, through absorption of 240,000 ha of privately owned land from farmers who retire or die without heirs. This acquisition program has not been progressing satisfactorily, however, because many farmers prefer to sell their land privately, for building sites, for example, rather than to exchange it for a Government pension.

Enlargement of production units, through farmers' associations, is also promoted within the private sector. This policy, relying on voluntary participation and on granting some financial benefits to the new associations, has also experienced somewhat disappointing results. Likewise, the large socialized enterprises are reluctant to absorb and cultivate small, scattered plots of land. Private farmers and large State farms cooperate best when the large farms are located near the individual holdings.

Considering the constraints, it is unlikely that Yugoslavia will be able to steer its agriculture along the planned growth path. The official limits on land ownership undercut the production potential in the private sector. In addition, agricultural productivity has dropped because of the aging agricultural work force, while inflation has made profitability less certain. Another factor affecting Yugoslav agriculture is the dwindling capability to export commodities, due to the slowness of the economic recovery in Western Europe and the import restrictions caused by large foreign debt accumulation in Eastern Europe.

Production Targets

Self-sufficiency in farm production has eluded Yugoslavia for the past 25 years, but progress toward self-sufficiency is an important objective for 1976-80. The following tabulation shows the declining growth rate of the annual average gross agricultural production in successive 5-year periods:

	Percent
1956-60	6.2
1961-65	3.0
1966-70	2.9
1971-75	2.4

The current FYP calls for a 4 percent growth rate which, if fulfilled, will reverse this trend, provide self-sufficiency in temperate-zone food production, and allow food and feed reserves to expand, as well as provide surpluses of grains and meat for export. During 1976 and 1977, Yugoslav agricultural production rose by about an average of 4.5 percent annually, compared with the 4 percent planned.

Official crop production targets were announced in Belgrade, as follows:

Table 28--Yugoslavia: Crop production and targets

Commodity	1971-75	1976-77	1980 plan	Annual increase 1980/1971-75
	Million tons			Percent
Total grain	14.5	16.4	18.0	3.1
Wheat	5.2	5.8	6.0	2.0
Corn	8.2	9.5	10.7	3.9
Barley	0.6	0.65	0.7	1.9
Oats	0.3	0.31	0.4	3.9
Rye	0.1	0.1	0.1	0
Sugarbeets	3.6	5.0	8.7	13.4
Potatoes	2.8	2.9	3.6	3.6
Sunflower seed	0.3	0.4	0.7	12.8
Soybeans	0.01	0.06	0.14	119.0
Rapeseed	0.01	0.03	0.08	68.0
Tobacco	0.06	0.07	0.10	7.6
Fruit	1.5	1.4	2.0	4.2
Grapes	1.2	1.2	1.5	3.2

Based on 1976-77 results, the grain production goals seem to be within reach. But significant incentives and administrative intervention will be needed to attain the industrial crop production targets. A shift of some sown areas to oilseeds and sugarbeets will be necessary.

Feed production, particularly corn, is geared to cover the growing domestic requirements. More efficient production, an expansion of cultivated land by 250,000 ha, and greater use of hilly and mountainous land for grazing livestock and growing fruit, provide opportunities for improvement. The potential for efficient production is being enhanced by increased investments in the fertilizer and farm machinery industries and in irrigation.

The livestock industry is considered the key to fulfilling the plan, since its share of gross farm output is to rise to 54 percent by 1980 from 52 percent currently.

Table 29--Yugoslavia: Livestock production and targets

Commodity	1971-75	1976-77	1980 plan	Annual increase 1980/1971-75
	1,000 tons			Percent
Meat (total)	943	1,061	1,286	4.6
Beef	288	327	407	5.1
Pork	363	386	510	5.0
Mutton	51	59	65	3.5
Poultry	164	208	239	5.5
Other	77	81	65	-2.1
Milk 1/	3,280	4,285	4,713	5.3
		Millions		
Eggs	3,273	3,912	4,509	4.7

1/ Including sheep milk.

The results in 1976 and 1977 were not encouraging for the fulfillment of the FYP in livestock production. Total meat production declined slightly in 1976, and the increase in 1977 was only about 2 percent.

Investment and Input Goals

Agriculture is among the 6 branches of the Yugoslav economy benefiting in 1976-80 from Government-approved priority treatment in investment allocations. Agriculture and related industries will receive about $3.6 billion which is 11.4 percent of the total investment in fixed assets planned for the socialized sector. Of this amount, agricultural production (including fishing) will receive about two-thirds; the food industry, including construction of storage and refrigeration facilities, 22 percent; drainage and irrigation construction, 11 percent.

The annual growth rate in agricultural investment will be 7.7 percent during 1976-80 compared with 7 percent during 1971-75. In addition to Yugoslavia's own financial resources, foreign loans will be used. The World Bank approved a $50 million loan and an additional $25 million loan is under consideration. The World Bank loan specifies that $28.4 million be used in the socialized sector and $21.6 million in the private sector. Credits in the socialized sector, granted for long terms, will be used for the construction of food processing, refrigeration, and drying facilities, and improving the cattle industry. In 1978, the CEMA-controlled International Investment Bank will make some loans to Yugoslavia, the first time that such loans will have been made to a nonmember nation.

Among industrial investments related to agriculture, a fertilizer factory in Novi Sad is one of the most costly projects. This factory will have an annual production capacity of 200,000 tons of fertilizer. Equally important is the exploitation of a recently discovered phosphate deposit that will reportedly supply 3.6 million tons of raw materials by 1980, thus providing a surplus above the projected 3-million-ton domestic requirement. In accordance with the plan, domestic use of fertilizer nutrient by 1980 is planned to reach 180 kilograms per ha of cultivated land, doubling the level of 1975.

The irrigated area will be significantly expanded. In 1975, less than 2 percent of arable land was irrigated, one of the lowest levels in Europe. Canals are now being constructed to drain and irrigate about 25,000 to 50,000 ha of land annually. Land reclamation should put about 200,000 ha of swampland in productive use by 1980.

Mechanization will also be increased. In 1975, 230,000 tractors, half of them imported, were in use; 205,000 medium-power tractors were in the private sector, while the remainder, mostly heavy-duty tractors, were on socialized farms. In the private sector, although one tractor was available for 31 ha of cultivated land, they were not used to their potential capacity. The plan calls for 400,000 tractors in use by 1980 in 35 horsepower unit equivalent. The number of imported tractors is supposed to decline gradually as domestic production increases.

Food and Feed Industry

The growth target for the food- and feed-processing industry is 8 percent annually. Production of sugar, vegetable oils, canned meats, dairy products, vegetables, and fruits, and convenience foods, as well as the mixed-feed industry, will benefit from the investments.

The sugar industry will be one of the major beneficiaries. The sugar production goal is 925,000 tons. This production target is commensurate with the sugarbeet-growing plan and with domestic sugar consumption. If the plan is fulfilled, sugar imports will be eliminated. A "social accord" reached between industry and Government in 1976 calls for remodeling 13 sugar-processing factories and constructing 6 new plants during 1976-80. The new and modernized installations will gradually increase the daily sugarbeet-processing capacity from 38,800 tons in 1975 to 65,500 tons in 1978 and to 92,500 tons by 1980.

The production target for edible oils and vegetable fats is 315,000 tons by 1980, which will satisfy domestic requirements and allow building up reserves. The increase will be 9.4 percent annually from the average 170,000 tons produced during 1971-75. Three new oilseed-crushing plants are being built. A joint Italian/Yugoslavian soybean-processing plant opened in July 1977. The plant, located in Zadar, will produce about 66,000 tons of oil and 280,000 tons of meal annually. A U.S. company is presently engaged in constructing a jointly owned and managed soybean-processing plant in Vukovar.

Modernization and efficiency are emphasized for the meat-processing industry with a directive toward maximum use of byproducts. New milk-processing plants will be built to make milk powder from seasonal surpluses.

Labor, Income, Consumption, and Prices

During 1976-80, the population is projected to grow 0.8 percent annually; this is below the 1 percent average annual increase of the last 20 years. Yugoslavia is encountering serious difficulties in employing its growing labor force. Unemployment and underemployment plague the economy, despite 700,000 Yugoslavs still working in Western Europe, principally in West Germany. The economic slowdown in Western Europe the last few years resulted in a decreased opportunity for Yugoslavs to find jobs abroad, while the returning workers inflated the number of domestic jobseekers. In 1976, about 80,000 workers returned. Under these conditions, the outflow of agricultural workers has slowed down. If economic conditions in the West improve, however, the number of workers returning to Yugoslavia from abroad will decline, relieving some of the pressure on the job market. The plan assumes that agriculture's share in the labor force will decline from 33 percent in 1975 to 28 percent by 1980. This implies the expectation that workers who leave the agricultural sector can be absorbed by industry.

In general, the plan limits the rise of real personal income to the increase in labor productivity. In 1976, the average real income of the population increased by 3.6 percent, in 1977 by 4 percent. The income derived from agriculture in 1976 was up 4.4 percent from the depressed 1975 level. The expected annual income increase between 1976 and 1980 is 3-4 percent. However, agriculture's share in national income is expected to decline from the 16.2 percent in 1976 to 14 percent by 1980 due to a faster growth in nonagricultural sectors.

The Yugoslav Government estimates that, because of the expected rise in income, the consumption of farm products and processed food will grow 4 percent a year between 1976 and 1980. A shift to a higher quality diet, away from bread and potatoes to livestock products, fruits, and vegetables, is anticipated. Because of the shift to higher-priced foods, the portion of personal income spent for food (one-third in 1975) will decline only slightly.

Since 1973, the Yugoslav economy has been hurt by double-digit inflation: 30 percent in 1974, 26 percent in 1975, 10 percent in 1976, and 15 percent in 1977. Price increases for agricultural producers lagged behind the rate of inflation with 13 and 14 percent increases in 1974 and 1975, respectively, exceeded the inflation rate in 1976 with a 15 percent increase, but lagged again in 1977. To compensate for increased production costs, farmers received a 20 percent rebate on their fertilizer costs in 1977. The rebates were reduced to 14 percent in 1978, and will be reduced to 7 percent in 1979, and abolished in 1980. The Yugoslav Government intends to continue Federal price controls for wheat, corn, rice, oilseeds, sugarbeets, tobacco, cotton, wool, milk, and livestock for slaughter. However, retail prices of the same products and manufactured goods made from them will remain under the control of the Republics and Autonomous Provinces.

Agricultural Trade

Foreign trade is a significant component of the Yugoslav national economy. In 1975, the value of trade was equal to 44 percent of national income. The trade deficit averaged close to $3.5 billion in 1974 and 1975 and dropped to about $2.5 billion in 1976 and 1977.

As a remedial measure, Yugoslavia, in 1976, stressed export expansion and used a flexible import duty similar to the variable levy system in the European Community. Besides duties, import quotas and limitations on foreign exchange allocations kept imports down. In 1976, an import duty of 5 percent was charged on live animals, livestock products, and grains (except rice), and a 3 percent levy was put on soybean meal imports, but soybean imports were exempted. A relaxation of these measures in 1977 contributed to a deterioration of the trade balance.

Yugoslavia's goal is to keep the annual growth of imports below 10 percent, while increasing the annual growth of exports by 14 percent. In 1976, imports actually declined, so that the goal was achieved. During 1977, however, imports increased 13 percent, while exports increased just 10 percent.

Agricultural imports from the United States declined sharply during 1975 and 1976 compared with imports in preceding years. The $76 million value of 1977 imports was more than in 1975 and 1976, but below the $115 million in 1974. Soybeans, soybean meal, and cattle hides accounted for more than 80 percent of imports in 1977.

Since 1974, Yugoslavia has shifted some trade from the West to Eastern Europe and the U.S.S.R. In 1976 and 1977, about 30 percent of Yugoslavia's imports came from these nations, compared with only 15 percent in 1972, and about 40 percent of its exports went there, against 36 percent in 1972. About half of that trade was with the Soviet Union.

Yugoslav exports of farm products are targeted to rise by 10 percent per year during 1976-80 and to reach more than $800 million by 1980, compared with $500 million in 1975 and over $600 million in 1976. Products singled out for export promotion include livestock and livestock products, grains and grain products, and wines and other alcoholic beverages. The export value of agricultural raw materials is targeted at $590 million for 1980, $130 million for food industry products, and $95 million for tobacco and tobacco products.

A record high grain crop in 1977 of 16.6 million tons, following good crops in the previous 3 years, has given Yugoslavia a strong start toward realizing its grain export goals. Among the grains, high expectations are placed on corn. Exports of corn are expected to reach 1.5 million tons by 1980, compared with 400,000 tons during the 1977 marketing year. Wheat exports are to reach half a million tons. The current policy of paying high prices to corn producers compared with world prices necessitates Yugoslavia's subsidizing its corn exports.

While Yugoslavia's 1976-80 FYP does not anticipate any grain imports, poor weather as in some past years may force the plan to be altered. Poor crops during the early 1970's, for instance, forced Yugoslavia to import as much as a million tons of grain a year, with the United States supplying over one-half of these imports in 1971 and 1972.

Simultaneously with increasing its grain exports, Yugoslavia wants to boost livestock-product exports, too, which of course hinges on the success of increasing grain supplies. Meat and meat products have traditionally been important exports. They totaled 85,000 tons in 1975 and 89,000 in 1976, having recovered partially from the drastic decline in 1974 caused by the ban on beef imports by the European Community. Yugoslavia's meat exports before these restrictions totaled about 100,000 tons a year.

One rapidly growing outlet for Yugoslav processed meat has been the United States. Yugoslavia ranks second to Poland as the largest East European exporter of processed meat to the United States, supplying $48 million worth in 1977--5 times the value and triple the quantity exported in 1971.

☆ U. S. GOVERNMENT PRINTING OFFICE : 1978 261-496/138

REFERENCES

Most of the information was obtained from the official statistical publications of the individual countries. Supplementary data were obtained from various issues of many of the following.

Alton, Thad P., et al. Occasional Papers of the Research Project on National Income in East Central Europe: Agricultural Output, Expenses, Gross Product, Depreciation, and Net Product in Eastern Europe, Prewar and 1950-1975. New York: L. W. International Financial Research, Inc., 1976. OP-49

Daily Report: Eastern Europe. Foreign Broadcast Information Service. U.S. Dept. of Commerce.

Laird, Roy D., Joseph Hajda, and Betty A. Laird (ed.). The Future of Agriculture in the Soviet Union and Eastern Europe: the 1976-80 Five Year Plans. Westview Special Studies on the Soviet Union and Eastern Europe. Boulder, Colorado: Westview Press, 1977.

Summary of World Broadcasts: Part 2, Eastern Europe, Weekly Economic Report. Reading, England: British Broadcasting Corporation.

Translations on Eastern Europe. U.S. Joint Publications Research Service.

Foreign newspapers:

Bauern Echo (German Democratic Republic)

Elore (Romania)

Nepszabadsag (Hungary)

USDA Publications:

Agricultural Statistics of Eastern Europe and the Soviet Union 1950-70. U.S. Dept. of Agriculture, Economic Research Service. Foreign 349. 1973.

Eastern Europe Agricultural Situation. U.S. Dept. of Agriculture, Economics, Statistics, and Cooperatives Service. Various issues.

Foreign Agricultural Trade of the United States. U.S. Dept. of Agriculture, Economics, Statistics, and Cooperatives Service. Various issues.

U.S. Exports Sales. U.S. Dept. of Agriculture, Office of the General Sales Manager. Various issues.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101
THIRD CLASS

U.S.MAIL